

R-410A

Engineering Data

FXOQ-M + BEQ-M
Concealed Vertical
Air-Handler Type



FXOQ-M+BEQ-M

Concealed Vertical Air-Handler Type

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1. Features

1.1 Concealed Vertical Air-Handler Features

- Designed for use with R-410A
- Rifled copper tubing
- Patented Fin Design
- UL Listed
- Available voltage: 208/60Hz-1ph
- High efficiency motors
- 40 VA control voltage transformer
- Dynamically balanced blowers for quiet vibration-free operation
- Refrigerant connections are 3/8" ODF liquid and 3/4" ODF (12-30) or 7/8" ODF (36-48) suction.
- Dual 3/4" FPT condensate drains
- Drain pans are molded of corrosion-proof engineering polymer.
- Filter rack built into every air handler
- Electric heat is available by a kit for field installation. Plug-in connections simplify installation of kits.
- Cabinet constructed of pre-painted heavy gauge galvanized steel to prevent corrosion. Lined with high quality 5/8" foil-faced insulation to protect sweating.
- Available in upflow configuration only.
- Standard factory-installed circuit breaker on models with electric heat kits.
- All field-installed kits come with thorough, easy to follow instructions.
- All air handlers are top-handling packaged with bar coding and full description on the label.
- Electrical connections can be made on top or right side.
- All coils are individually pressure tested at 500 PSI, then pressurized and sealed.
- Magnetic filter rack doors:
 - ◆ Easy filter replacement.
 - ◆ Tight seal for less air leakage.
 - ◆ Fiberglass air filter comes with every air handler.
 - ◆ Filter rack accepts standard size filters sold in hardware stores.

1.2 Rules for Use with VRV-Systems

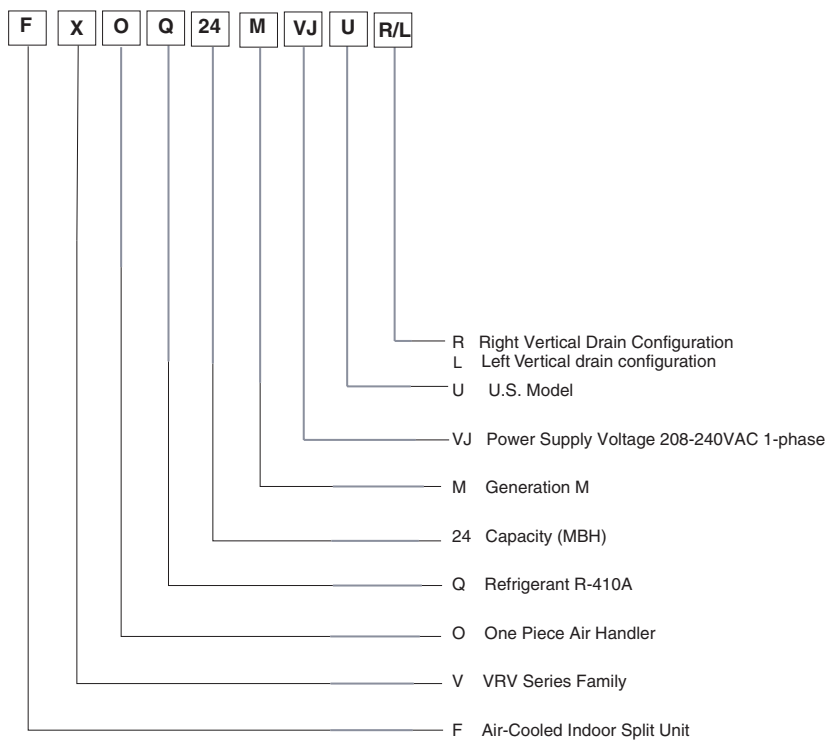
- The Vertical Air Handler Unit is manufactured as two separate components: **FXOQ__MVJU Air Handler** and **BEQ__MVJLR1 Junction Box**.
- When applying this new air handler, the KRCS01-1 Remote Temperature Sensor Kit is a necessary addition for all FXOQ+BEQ Indoor Units.
- The FXOQ+BEQ unit can be used on all VRV, VRV-S, and VRV-WII Systems.
- The Application Range (Connection Index) for the FXOQ+BEQ unit is limited to 50-130%.
- The FXOQ+BEQ unit **cannot** be installed on the same system as that containing indoor units from another VRV indoor unit family (i.e. RXYMQ with FXOQ and FXSQ is **NOT PERMITTED**).
- The FXOQ+BEQ unit is **permitted for 208V/1/60 Applications only**.
- All projects using the FXOQ+BEQ solution must be reviewed and verified (in writing) by the Daikin AC Internal Sales Department for the following items: Total capacity index, Total Air Handler Coil Index, and System Configuration.
- The FXOQ Air Handler is approved for **upflow installations ONLY**.
- The FXOQ has a Backup Electric Heater Option (5kW to 25kW) that is field installed. When using the Backup Electric Heater Option, the system requires the Lockout Function accessory PCB for VRV Heat Pump and Heat Recovery Condensing Units.
- Standard Wired Controllers (BRC1D71 or BRC2A71) can be used with this product.
- A BRC4C Wireless Controller can be used for wireless applications.
- Unit Fan speed is selectable as H and L, but airflow stays the same.

1.3 BEQ Junction Box Application Rules

- The BEQ is power supplied from the FXOQ Air Handler Unit.
- The BEQ supports 208V/1/60 Power Supply **ONLY** at this time (no 230 or 240/1/60 is permitted).
- Maximum Piping Distance between BEQ and FXOQ permitted is 10 feet.
- Maximum Height Separation between BEQ and FXOQ permitted is 7 feet.
- Maximum Piping Distance between FXOQ and 1st REFNET Joint permitted is 7 feet.
- Pipe sizing downstream of the BEQ junction box (BEQ to FXOQ) follows the BEQ Spec Table.
- Pipe/REFNET sizing upstream of the BEQ junction box as per normal VRV rules.

2. Nomenclature and Combination

2.1 Nomenclature



2.1.1 Heater Selection Table

Heater Size rated at 240V	UNIT SIZE	kW Available
00 - No Heat	12	5, 7.5, 10
05 - 5 kW	18	5, 7.5, 10
07 - 7.5 kW	24	5, 7.5, 10, 12.5
10 - 10 kW	30	5, 7.5, 10, 12.5, 15
12 - 12.5 kW	36	12.5, 15, 20
15 - 15 kW	42	12.5, 15, 20
20 - 20 kW	48	12.5, 15, 20, 25
25 - 25 kW		

2.2 Combination

Combine the Electronic Expansion Valve unit and the Vertical Air Handling Unit according to the following table:

Electronic Expansion Valve Unit	Vertical Air Handling Unit (specified by Daikin)
BEQ12MVJLR1	12 Type
BEQ18MVJLR1	18 Type
BEQ24MVJLR1	24 Type
BEQ30MVJLR1	30 Type
BEQ36MVJLR1	36 Type
BEQ48MVJLR1	42 Type and 48 Type

3. Specifications

Air Handler Unit + BEQ Junction Box

			FXOQ12MVJU	FXOQ18MVJU	FXOQ24MVJU	FXOQ30MVJU
Cooling Capacity ¹		Btu/h	12,000	18,000	24,000	30,000
Heating Capacity ²		Btu/h	12,000	18,000	24,000	30,000
Casing Color			Pre-painted steel	Pre-painted steel	Pre-painted steel	Pre-painted steel
Dimensions: (H x W x D)		in (mm)	44 x 15 x 22" (1118 x 381 x 559 mm)	44 x 15 x 22" (1118 x 381 x 559 mm)	44 x 15 x 22" (1118 x 381 x 559 mm)	48 x 18-1/2 x 22" (1219 x 470 x 559 mm)
Coil	Type		Slant	Slant	Slant	Slant
	Tubing		Rifled Copper	Rifled Copper	Rifled Copper	Rifled Copper
Fan	Wheel (Dia. Width)	In (mm)	9 x 6" (229 x 152 mm)	9 x 6" (229 x 152 mm)	9 x 6" (229 x 152 mm)	10x 8" (254 x 203 mm)
	Motor Output	HP	1/5	1/5	1/3	1/3
	Speed		Single	Single	Single	Single
	Air Flow	CFM	400	600	800	1000
Temperature Control			Microprocessor Thermostat for Cooling and Heating (in BEQ Box)	Microprocessor Thermostat for Cooling and Heating (in BEQ Box)	Microprocessor Thermostat for Cooling and Heating (in BEQ Box)	Microprocessor Thermostat for Cooling and Heating (in BEQ Box)
Sound Absorbing Thermal Insulation Material			5/8" Foil Insulation	5/8" Foil Insulation	5/8" Foil Insulation	5/8" Foil Insulation
Air Filter	Type		Disposable MERV 4	Disposable MERV 4	Disposable MERV 4	Disposable MERV 4
	Dimensions	in / mm	12 x 20" / 305 x 508 mm	12 x 20" / 305 x 508 mm	12 x 20" / 305 x 508 mm	16 x 20" / 406 x 508 mm
Piping Connections	Liquid Pipes	in (mm)	φ3/8" / 9.5 mm (Brazed)	φ3/8" / 9.5 mm (Brazed)	φ3/8" / 9.5 mm (Brazed)	φ3/8" / 9.5 mm (Brazed)
	Gas Pipe	in / mm	φ3/4" / 19.1 mm (Brazed)	φ3/4" / 19.1 mm (Brazed)	φ3/4" / 19.1 mm (Brazed)	φ3/4" / 19.1 mm (Brazed)
	Condensate	in (mm)	φ3/4" / 19.1 mm FPT	φ3/4" / 19.1 mm FPT	φ3/4" / 19.1 mm FPT	φ3/4" / 19.1 mm FPT
Unit Weight		Lbs/kg	120 lbs / 54 kg	120 lbs / 54 kg	120 lbs / 54 kg	140 lbs / 64 kg
Safety Devices			Circuit Breaker, Thermal Protector for Electric Heater	Circuit Breaker, Thermal Protector for Electric Heater	Circuit Breaker, Thermal Protector for Electric Heater	Circuit Breaker, Thermal Protector for Electric Heater
Refrigerant Control			Electronic Expansion Valve (in BEQ Box)	Electronic Expansion Valve (in BEQ Box)	Electronic Expansion Valve (in BEQ Box)	Electronic Expansion Valve (in BEQ Box)
Connectable Condensing Unit			R-410A M-Series	R-410A M-Series	R-410A M-Series	R-410A M-Series
Standard Accessories			Operation Manual, Installation Manual	Operation Manual, Installation Manual	Operation Manual, Installation Manual	Operation Manual, Installation Manual
Model			BEQ12MVJLR1	BEQ18MVJLR1	BEQ24MVJLR1	BEQ30MVJLR1
Connectable FXOQ Indoor Unit			FXOQ12MVJU	FXOQ18MVJU	FXOQ24MVJU	FXOQ30MVJU
Casing / Color			Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate	Galvanized Steel Plate
Dimensions (H x W x D)		in / mm	12-3/16 x 14-9/16 x 6-11/16" (311 x 368 x 170 mm)	12-3/16 x 14-9/16 x 6-11/16" (311 x 368 x 170 mm)	12-3/16 x 14-9/16 x 6-11/16" (311 x 368 x 170 mm)	12-3/16 x 14-9/16 x 6-11/16" (311 x 368 x 170 mm)
Sound Absorbing Thermal Insulation Material			Flame & Heat Resistant Foamed Polyetherene	Flame & Heat Resistant Foamed Polyetherene	Flame & Heat Resistant Foamed Polyetherene	Flame & Heat Resistant Foamed Polyetherene
Piping Connections (Air Handling Units)	Liquid Pipe	in / mm	φ3/8" / 9.5 mm (Flare)	φ3/8" / 9.5 mm (Flare)	φ3/8" / 9.5 mm (Flare)	φ3/8" / 9.5 mm (Flare)
	Gas Pipe	in / mm	φ3/4" / 19.1 mm (Flare)	φ3/4" / 19.1 mm (Flare)	φ3/4" / 19.1 mm (Flare)	φ3/4" / 19.1 mm (Flare)
Piping Connections (Up-stream Units)	Liquid Pipe	in / mm	φ1/4" / 6.4 mm (Flare)	φ1/4" / 6.4 mm (Flare)	φ3/8" / 9.5 mm (Flare)	φ3/8" / 9.5 mm (Flare)
	Gas Pipe	in / mm	φ1/2" / 12.7 mm (Flare)	φ1/2" / 12.7 mm (Flare)	φ5/8" / 15.9 mm (Flare)	φ5/8" / 15.9 mm (Flare)
Unit Weight		lbs/kg	19 lbs / 8.6 kg	19 lbs / 8.6 kg	20 lbs / 9.1 kg	20 lbs / 9.1 kg
Safety Devices			Fuse	Fuse	Fuse	Fuse
Standard Accessories			Installation Manual, Caution Label, Clamp, Insulation for fitting, Thermistor, Thermistor Fixing Plate, Sealing Pad	Installation Manual, Caution Label, Clamp, Insulation for fitting, Thermistor, Thermistor Fixing Plate, Sealing Pad	Installation Manual, Caution Label, Clamp, Insulation for fitting, Thermistor, Thermistor Fixing Plate, Sealing Pad	Installation Manual, Caution Label, Clamp, Insulation for fitting, Thermistor, Thermistor Fixing Plate, Sealing Pad

Notes:

- Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor air temperature: 95°FDB
Equivalent ref. piping length: 25ft / 7.5 m (Horizontal)
- Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB
Outdoor air temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft / 7.5 m (Horizontal)
- Refer to Electrical Characteristics for Power Input information.

Air Handler Unit + BEQ Junction Box

			FXOQ36MVJU	FXOQ42MVJU	FXOQ48MVJU
Cooling Capacity ¹		Btu/h	36,000	42,000	48,000
Heating Capacity ²		Btu/h	40,000	47,000	54,000
Casing Color			Pre-Painted Steel	Pre-Painted Steel	Pre-Painted Steel
Dimensions: (H x W x D)		in (mm)	49 x 20 x 26" (1244 x 508 x 660 mm)	49 x 20 x 26" (1244 x 508 x 660 mm)	49 x 20 x 26" (1244 x 508 x 660 mm)
Coil	Type		A-Type	A-Type	A-Type
	Tubing		Rifled Copper	Rifled Copper	Rifled Copper
Fan	Wheel (Diameter x Width)		10 x 8	10 x 8	10 x 8
	Motor Output	HP	1/2	1/2	1/2
	Speed		Single	Single	Single
	Airflow	CFM	1200	1400	1600
Temperature Control			Microprocessor Thermostat for Cooling and Heating (in BEQ Box)	Microprocessor Thermostat for Cooling and Heating (in BEQ Box)	Microprocessor Thermostat for Cooling and Heating (in BEQ Box)
Sound Absorbing Thermal Insulation Material			5/8" Foil Insulation	5/8" Foil Insulation	5/8" Foil Insulation
Air Filter	Type		Disposable MERV 4	Disposable MERV 4	Disposable MERV 4
	Dimensions	in/mm	18 x 25" / 457 x 635 mm	18 x 25" / 457 x 635 mm	18 x 25" / 457 x 635 mm
Piping Connections	Liquid Pipe	in (mm)	φ3/8" / 9.5mm (Braze)	φ3/8" / 9.5 mm (Braze)	φ3/8" / 9.5 mm (Braze)
	Gas Pipe	in (mm)	φ7/8" / 22.2 mm (Braze)	φ7/8" / 22.2 mm (Braze)	φ7/8" / 22.2 mm (Braze)
	Condensate	in (mm)	3/4" / 19.1 mm FPT	3/4" / 19.1 mm FPT	3/4" / 19.1 mm FPT
Unit weight		Lbs/kg	210 lbs / 95 kg	210 lbs / 95 kg	210 lbs / 95 kg
Safety Devices			Circuit Breaker, Thermal Protector for Electric Heater	Circuit Breaker, Thermal Protector for Electric Heater	Circuit Breaker, Thermal Protector for Electric Heater
Refrigerant Control			Electronic Expansion Valve (in BEQ box)	Electronic Expansion Valve (in BEQ box)	Electronic Expansion Valve (in BEQ box)
Connectable Condensing Unit			R-410A M-Series	R-410A M-Series	R-410A M-Series
Standard Accessories			Operation Manual, Installation Manual	Operation Manual, Installation Manual	Operation Manual, Installation Manual
Model			BEQ36MVJLR1	BEQ48MVJLR1	
Connectable FXOQ Indoor Unit			FXOQ36MVJU	FXOQ42MVJU / FXOQ48MVJU	
Casing / Color			Galvanized Steel Plate	Galvanized Steel Plate	
Dimensions (H x W x D)		in (mm)	12-3/16 x 14-9/16 x 6-11/16" (311 x 368 x 170 mm)	12-3/16 x 14-9/16 x 6-11/16" (311 x 368 x 170 mm)	
Sound Absorbing Thermal Insulation Material			Flame & Heat Resistant Foamed Polyetherene	Flame & Heat Resistant Foamed Polyetherene	
Piping Connections (Air Handling Units)	Liquid Pipe	in /mm	3/8" / 9.5 mm (Flare)	3/8" / 9.5 mm (Flare)	
	Gas Pipe	in /mm	7/8" / 22.2 mm (Flare)	7/8" / 22.2 mm (Flare)	
Piping Connections (Up-stream Units)	Liquid Pipe	in /mm	3/8" / 9.5 mm (Flare)	3/8" / 9.5 mm (Flare)	
	Gas Pipe	in /mm	5/8" / 15.9 mm (Flare)	5/8" / 15.9 mm (Flare)	
Weight		lbs/kg	20 lbs / 9.1 kg	20 lbs / 9.1 kg	
Safety Devices			Fuse	Fuse	
Standard Accessories			Installation Manual, Caution Label, Clamp, Insulation for fitting, Connection Pipe, Thermistor, Thermistor Fixing Plate, Sealing Pad	Installation Manual, Caution Label, Clamp, Insulation for fitting, Connection Pipe, Thermistor, Thermistor Fixing Plate, Sealing Pad	

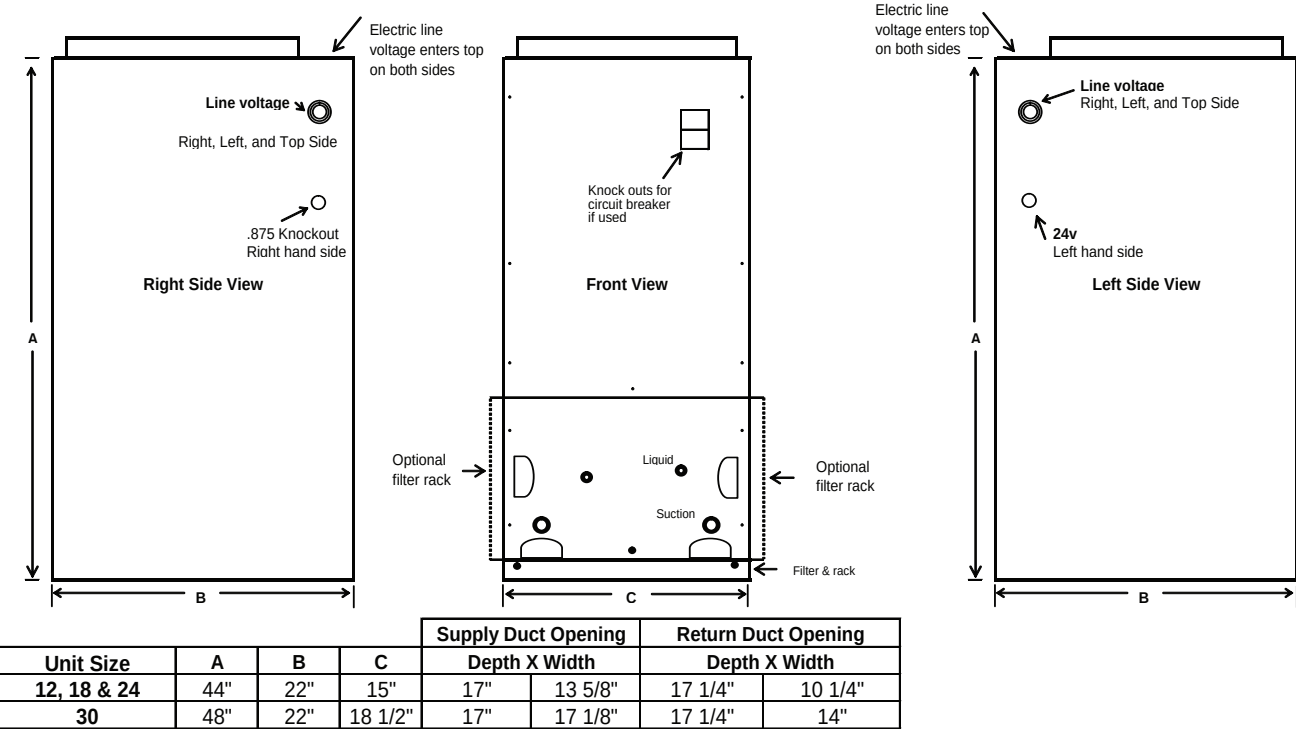
Notes:

- Nominal cooling capacities are based on the following conditions:
Return air temperature: 80°FDB, 67°FWB
Outdoor air temperature: 95°FDB
Equivalent ref. piping length: 25ft / 7.5 m (Horizontal)
- Nominal heating capacities are based on the following conditions:
Return air temperature: 70°FDB
Outdoor air temperature: 47°FDB, 43°FWB
Equivalent ref. piping length: 25ft / 7.5 m (Horizontal)
- Refer to Electrical Characteristics for Power Input information.

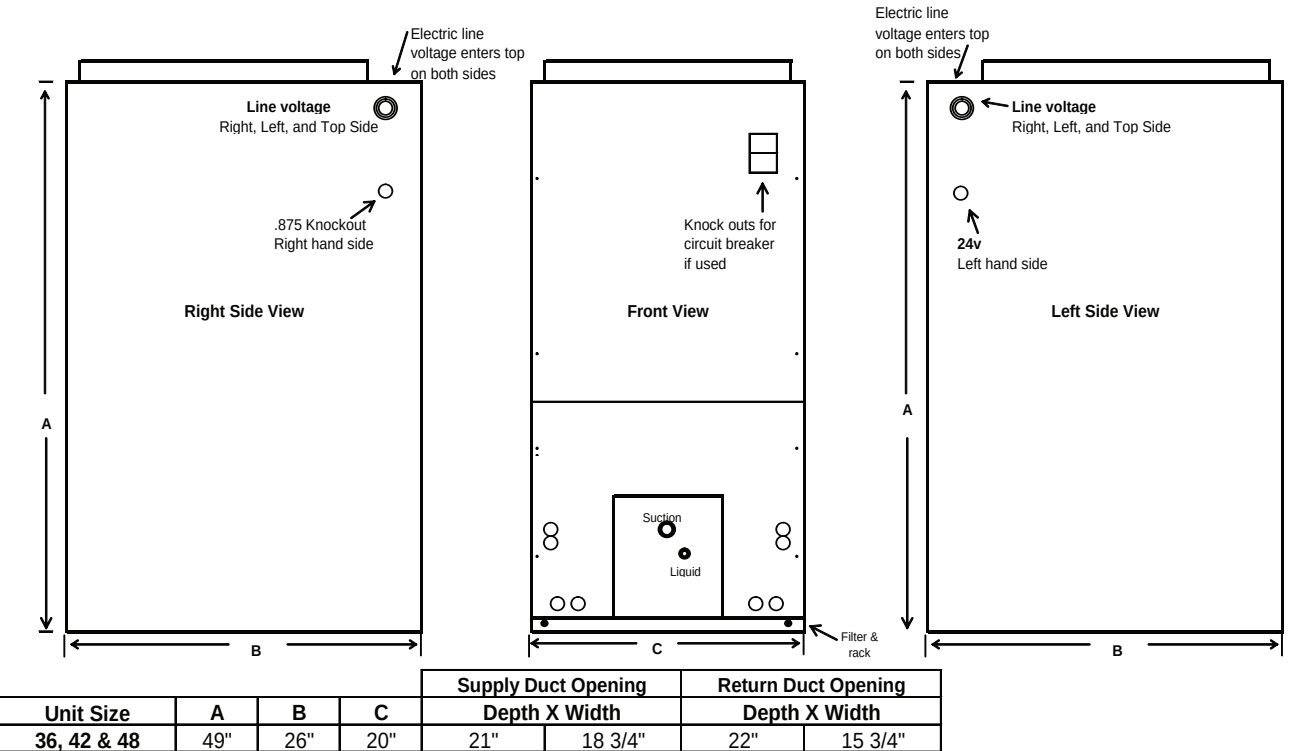
4. Dimensions

Dimensions

Sizes 12 - 30

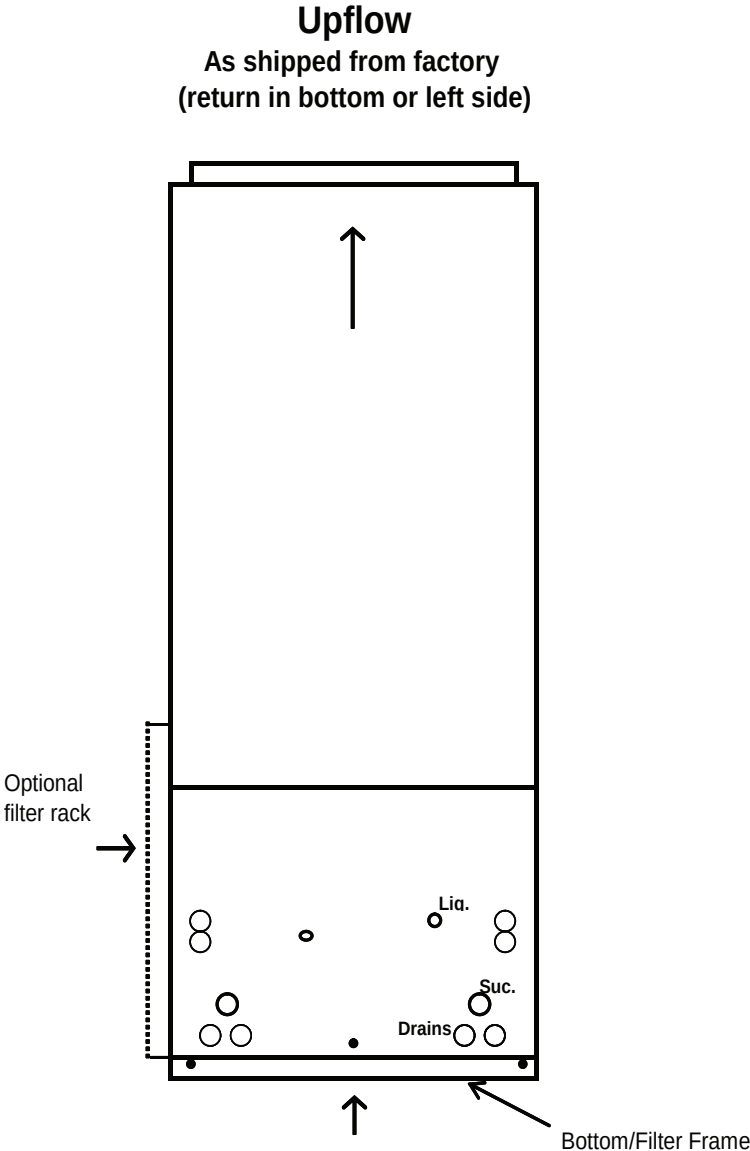


Sizes 36 - 48

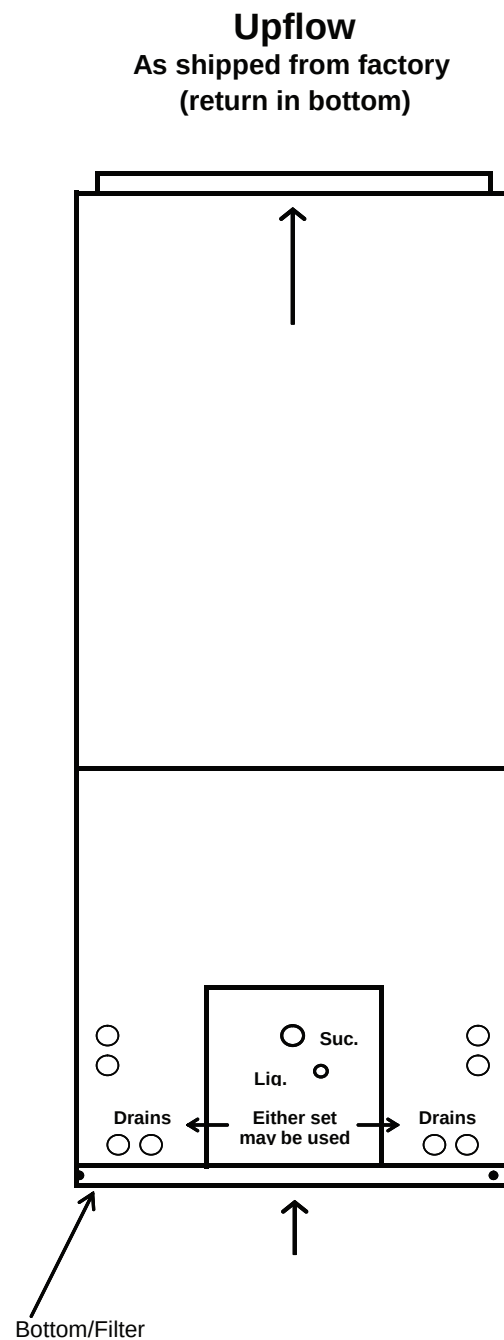


Size 12 - 30 Installation Configurations

Shading Indicates Proper Line Connections



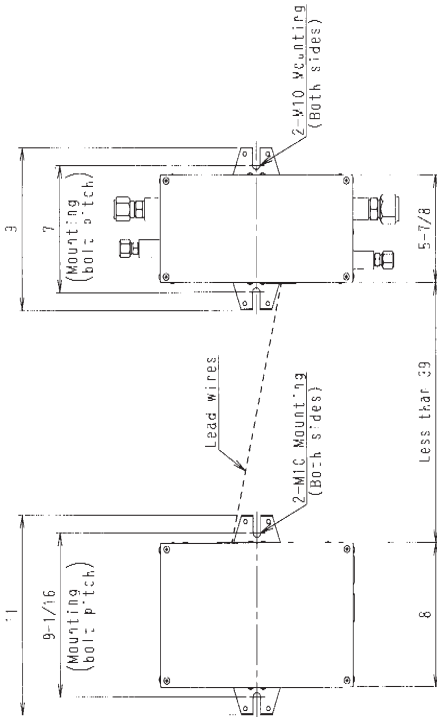
Size 36 - 48 Installation Configurations
Shading Indicates Proper Line Connections



CAD/3D
図面
3D ANGLE PROJECTION

3V007845

この図面は仕掛中です



IN CASE OF SEPARATE SETTING

A DE-AIL
(Only 36・48 Type)

Part name		Part name	
10	Wire connection port(Remote controller)	24	30 Type
9	Wire connection port(Air handler unit)	26	48 Type
8	Wire connection port(Power supply・Earth)		
7	Lifting lug		
6	Electric Parts box		
5	Accessory pipe		
4	Gas pipe connection port(Air handler side)		
3	Gas pipe connection port(Outdoor side)		
2	Liquid pipe connection port(Air handler side)		
1	Liquid pipe connection port(Outdoor side)		

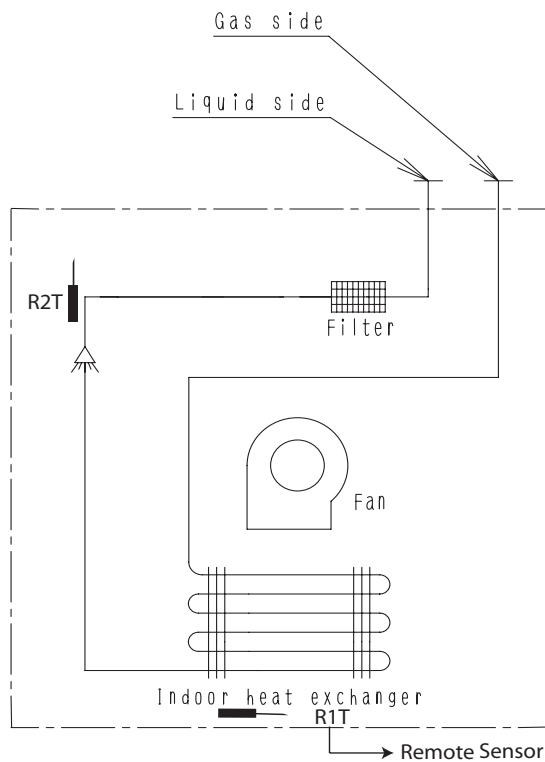
Electronic Expansion Valve Unit	
BE012, 18, 24, 30, 36, 48WJLRI	
OUTSIDE DRAWING	
3V007845	
943200	

タイキン工業株式会社	
TAIKIN KOGYO CO., LTD.	
3V007845	
943200	

図面番号	3V007845
図面コード	943200

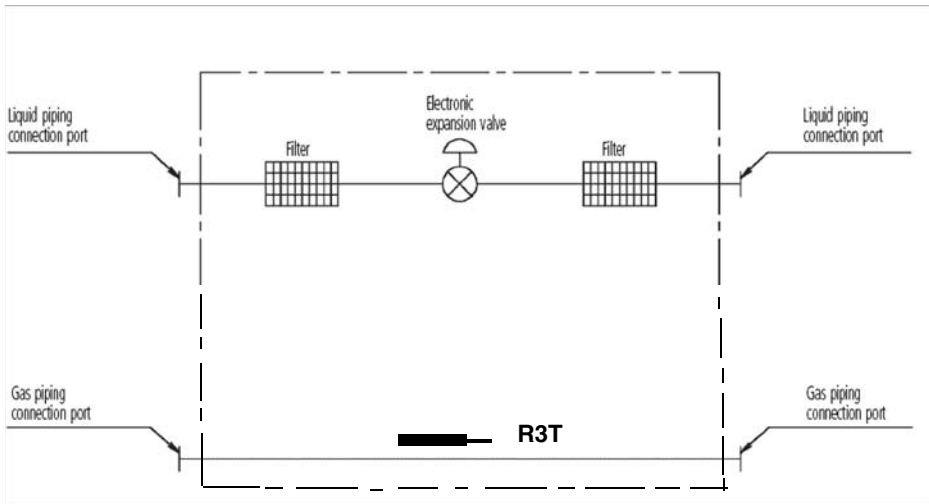
5. Piping Diagrams

FXOQ-MVJU



4D043864H

BEQ__MVJLR1



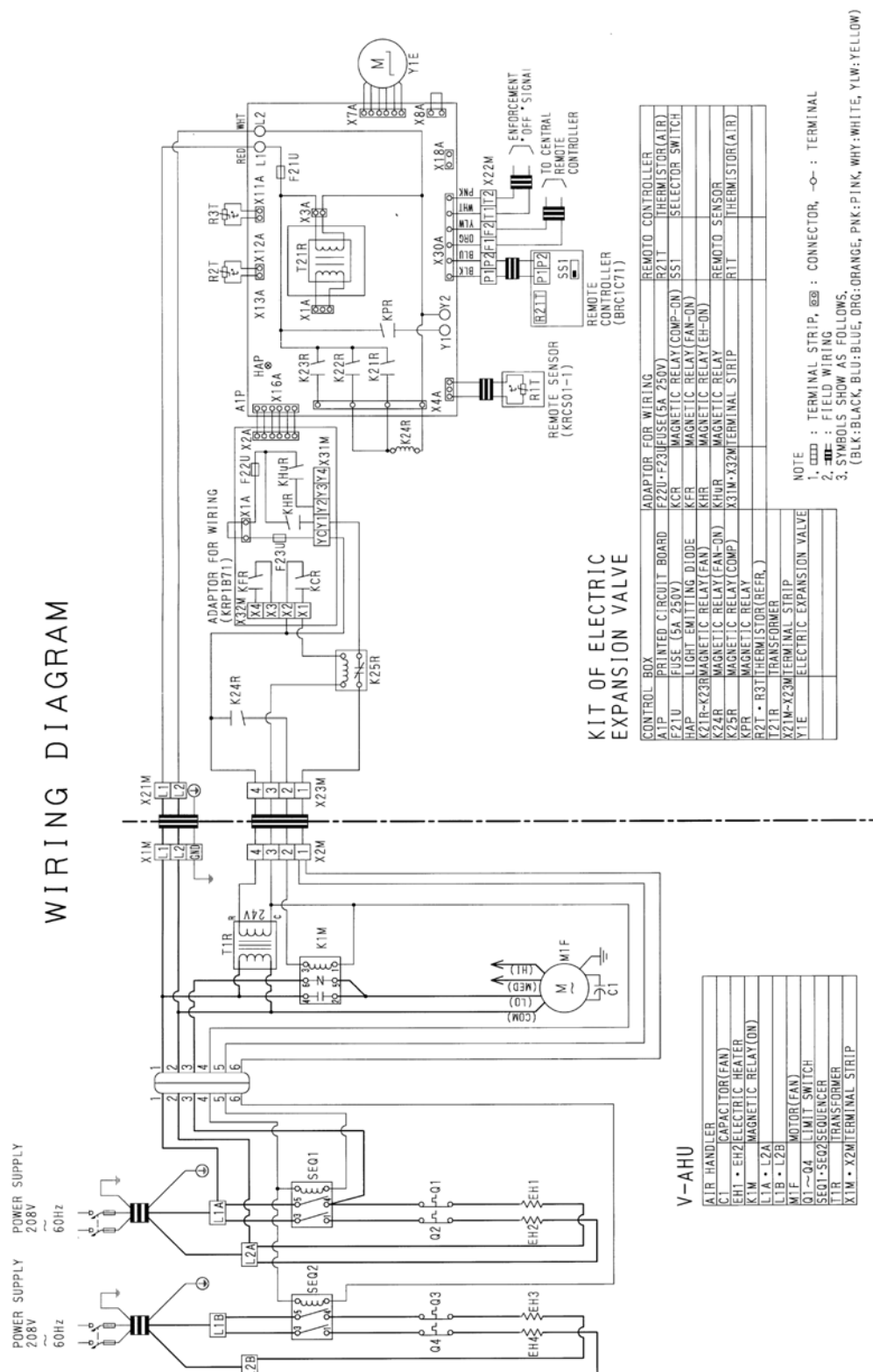
- R1T : Thermistor for suction air temperature
- R2T : Thermistor for liquid line temperature
- R3T : Thermistor for gas line temperature

	FXOQ__MVJU		BEQ__MVJLR1 (To FXOQ)		BEQ__MVJLR1 (UPSTREAM)	
Capacity	Gas	Liquid	Gas	Liquid	Gas	Liquid
12M	φ 3/4	φ 3/8	φ 3/4	φ 3/8	φ 1/2	φ 1/4
18M	φ 3/4	φ 3/8	φ 3/4	φ 3/8	φ 1/2	φ 1/4
24M	φ 3/4	φ 3/8	φ 3/4	φ 3/8	φ 5/8	φ 3/8
30M	φ 3/4	φ 3/8	φ 3/4	φ 3/8	φ 5/8	φ 3/8
36M	φ 7/8	φ 3/8	φ 3/4*	φ 3/8	φ 5/8	φ 3/8
42M	φ 7/8	φ 3/8	φ 3/4*	φ 3/8	φ 5/8	φ 3/8
48M	φ 7/8	φ 3/8	φ 3/4*	φ 3/8	φ 5/8	φ 3/8

*7/8” with connection pipe provided

6. Wiring Diagrams

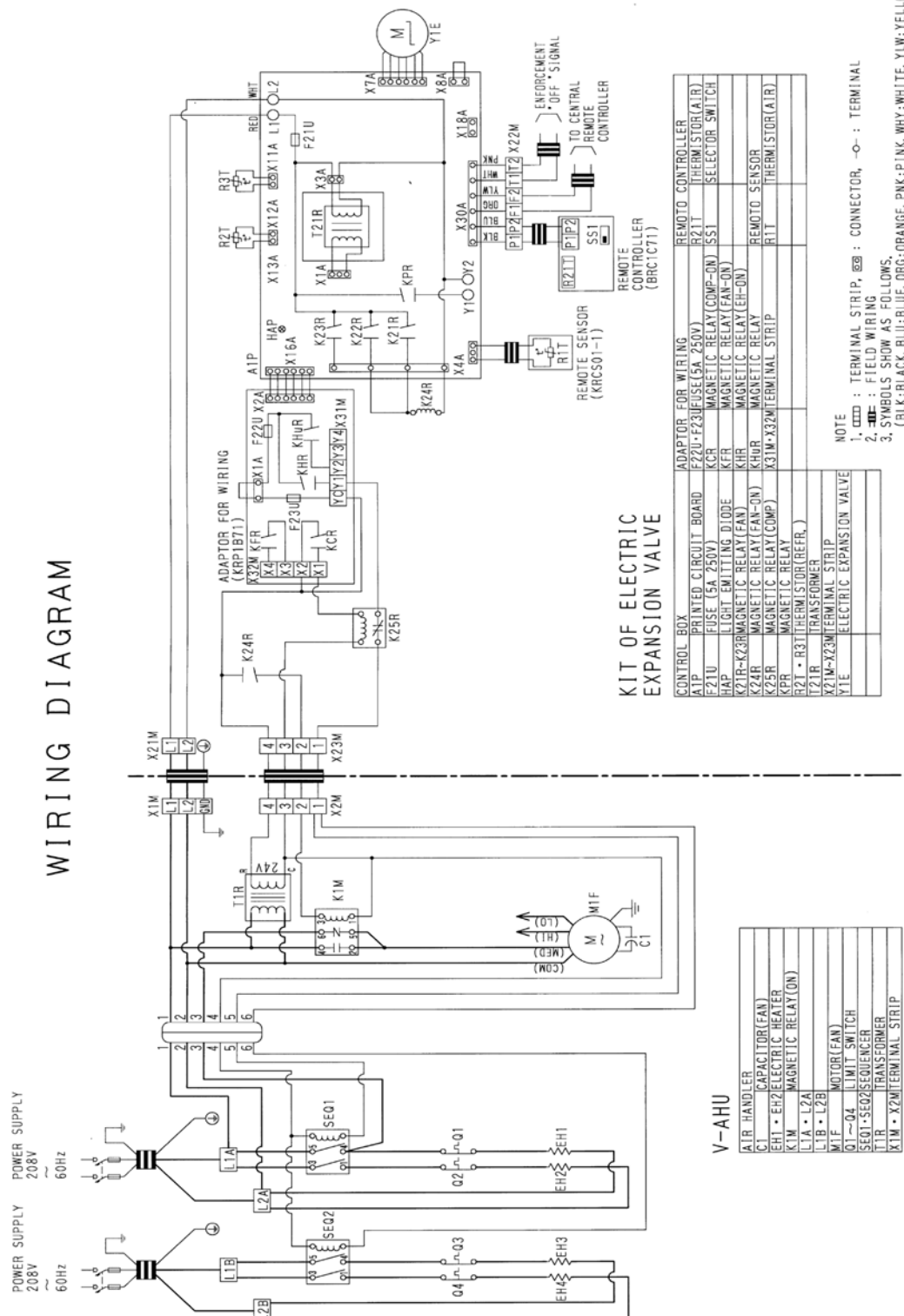
WIRING DIAGRAM



0628586

BEQ12MVJU

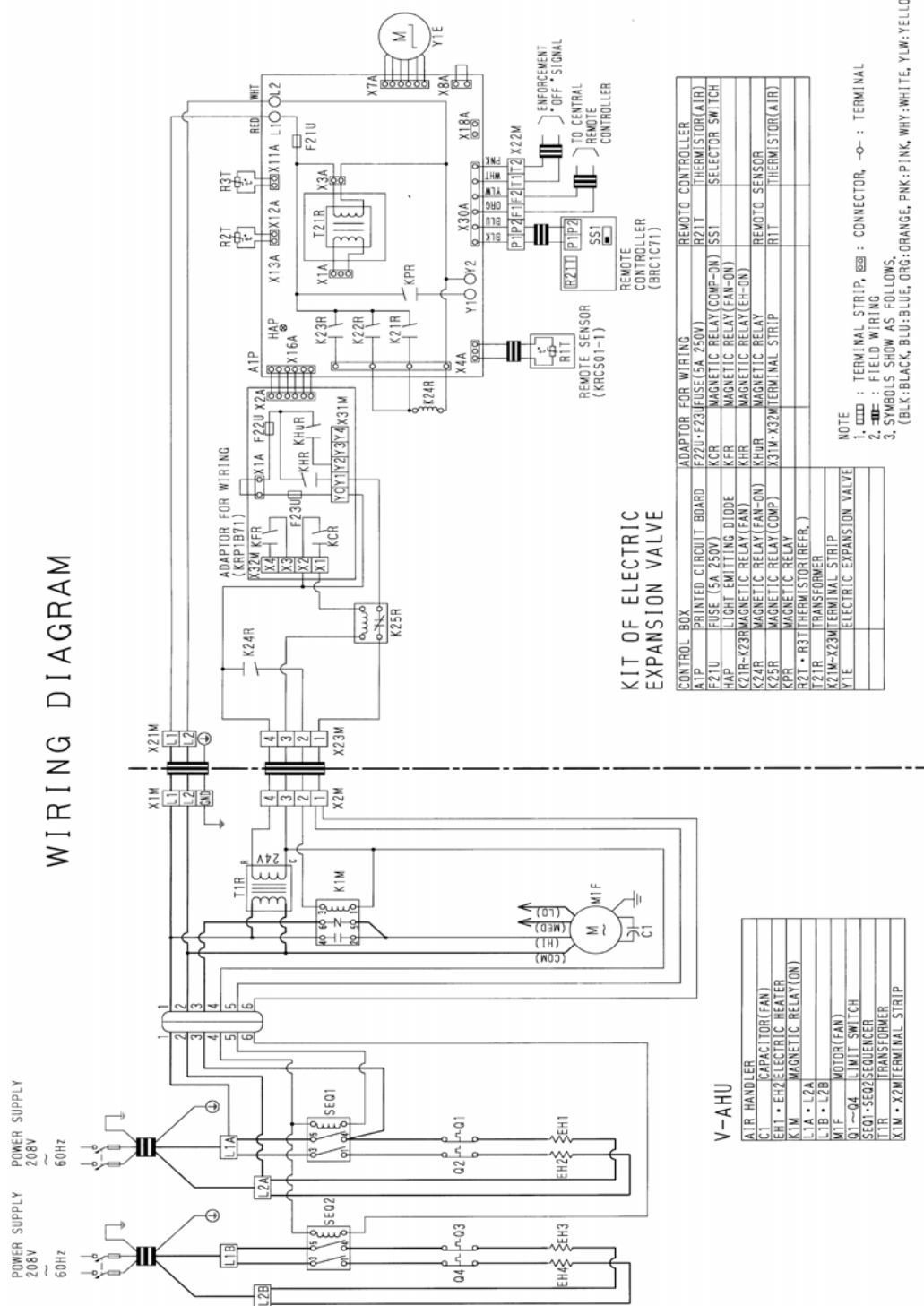
WIRING DIAGRAM



0628586

BEQ18 • 24MVJU

WIRING DIAGRAM



0628586

BEQ30 • 36 • 48MVJU

7. Electric Characteristics

UNITS				POWER SUPPLY		FAN MOTOR
MODEL	Hz	VOLTS	VOLTAGE RANGE	MCA	MFA	FLA
12Type+BEQ12MVJLR1	60	208	Max. 229 Min. 187	1.5	15	1.1
18Type+BEQ18MVJLR1				2.8		2.1
24Type+BEQ24MVJLR1				3.4		2.6
30Type+BEQ30MVJLR1				3.9		3.0
36Type+BEQ36MVJLR1				5.2		4.0
42Type+BEQ48MVJLR1						
48Type+BEQ48MVJLR1						

NOTE:

1. The above Table of Electrical Characteristics refers to the Electronics Expansion Valve unit and the Vertical Air Handling unit.
2. See the technical documents for other details.
3. See the Electrical Characteristics of the Vertical Air Handling Unit Installation Manual.
4. Use special caution with models with electric heaters, both MCA and MFA.

SPECIFICATIONS FOR FIELD SUPPLIED FUSE AND WIRE:

MODEL	POWER SUPPLY WIRING			TRANSMISSION WIRING	
	Field Fuse	Wire	Size	Wire	Size
Electronic Expansion Valve unit + Vertical Air Handling Unit	15A	UL1015	Size must comply with local codes.	2-Conductor, stranded non-shielded copper cable/ PVC or vinyl jacket	AWG 18

1. Select the particular size of electrical wire for proper line in accordance with the standards of the given nation and region.
2. Allowable length of the transmission wire should be as follows:
Between Electronic Expansion Valve unit and Vertical Handling Unit:
Maximum 10 feet (total wiring length 6562 ft.)
3. Insulated thickness: 1/16" or more
4. Up to 16 branches are possible for unit-to-cabling. No branch is allowed after first branch. See Figure 16.

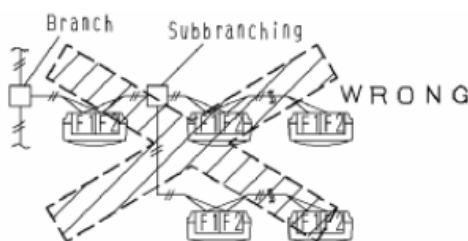


Fig. 16

8. Bypass Factors

Model	EWB	EDB	Bypass Factor
12	67	80	0.32
18	67	80	0.36
24	67	80	0.32
30	67	80	0.39
36	67	80	0.36
42	67	80	0.33
48	67	80	0.34

9. Fan (Blower) Performance

208 V (cfm)						
External Static Pressure ("wg)						
Size	Speed	.10	.20	.30	.40	.50
12	H/L	438	424	391	362	321
18	H/L	652	628	603	552	490
24	H/L	891	846	798	731	674
30	H/L	1032	1012	996	972	930
36	H/L	1235	1215	1184	1184	1173
42	H/L	1527	1502	1459	1433	1388
48	H/L	1637	1606	1562	1540	1507

10. Installation

10.1 Safety Considerations

Read **SAFETY CONSIDERATIONS** carefully before installing air conditioning equipment, and install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation.

Please instruct the customer on how to operate and maintain the unit.

Inform customers that they should store this installation Manual along with the Operation Manual for future reference.

Always use a licensed installer or contractor to install this product. Improper installation can result in water or refrigerant leakage, electrical shock, fire, or explosion.

Meanings of DANGER, WARNING, CAUTION, and NOTE symbols:



DANGER Indicates an imminently hazardous situation which, if not avoided, results in death or serious injury.



WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



NOTE Indicates situations that may result in equipment or property damage accidents only.



DANGER

- Refrigerant gas is heavier than air and displaces oxygen. A massive leak can lead to oxygen depletion, especially in basements, and an asphyxiation hazard could occur leading to serious injury or death.
- If the refrigerant gas leaks during installation, ventilate the area immediately. Refrigerant gas may produce toxic gas if it comes in contact with fire such as from a fan, heater, stove or cooking device. Exposure to this gas could result in severe injury or death.
- After completing the installation work, check that the refrigerant gas does not leak. Refrigerant gas may produce toxic gas if it comes in contact with fire such as from a fan, heater, stove, or cooking device, or other heat source. Exposure to this gas can cause severe injury or death.
- Do not ground units to water pipes, telephone wires, or lightning rods because incomplete grounding can cause a severe shock hazard resulting in severe injury or death. Do not ground units to gas pipes because a gas leak can result in an explosion that can lead to severe injury or death.
- Safely dispose of the packing materials. Packing materials such as nails and other metal or wooden parts, may cause stabs or other injuries. Tear apart and throw away plastic packaging bags so that children do not play with them. Children playing with plastic bags face the danger of death by suffocation.
- Do not install unit in an area where flammable materials are present due to risk of explosions that can result in serious injury or death.



WARNING

- Ask your dealer or qualified personnel to carry out installation work. Do not try to install the machine by yourself.
- Improper installation may result in water leakage, electric shocks, or fire.
- Perform installation work in accordance with this installation manual. Improper installation may result in water leakage, electric shocks, or fire.
- Be sure to use only the specified accessories and parts for installation work. Failure to use the specified parts may result in water leakage, electric shocks, fire, or the unit falling.
- Install the electronic expansion valve unit on a foundation strong enough to withstand the weight of the unit. A foundation of insufficient strength may result in the unit falling and causing injuries.
- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations, and this installation manual. An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.
- Make sure that all wiring is secured, the specified wires are used, and that no external forces act on the terminal connections or wires. Improper connections or installation may result in fire.



CAUTION

- When wiring the power supply and connecting the remote controller wiring and transmission wiring, position the wires so that the electric parts box lid can be securely fastened. Improper positioning of the electric parts box lid may result in electric shocks, fire, or the terminals overheating.
- Before touching electrical parts, turn off the unit.

- Refrigerant pipes may be very hot or very cold during or immediately after operation. Touching them could result in burns or frostbite. To avoid injury give the pipes time to return to normal temperature or, if you must touch them, be sure to wear proper gloves.
- Do not install the electronic expansion valve in the following locations:
 - (a) Where a mineral oil mist or an oil spray or vapor is produced, for example, in a kitchen. Plastic parts may deteriorate and fall off or result in water leakage.
 - (b) Where corrosive gas, such as sulfurous acid gas, is produced. Corroding copper pipes or soldered parts may result in refrigerant leakage.
 - (c) Near machinery emitting electromagnetic waves. Electromagnetic waves may disturb the operation of the control system and result in a malfunction of the equipment.
 - (d) Where flammable gases may leak, where there are carbon fiber or ignitable dust suspensions in the air, or where volatile flammables such as thinner or gasoline are handled. Operating the unit in such conditions may result in fire.
- Heat exchanger fins are sharp enough to cut. To avoid injury wear gloves to cover the fins when working around them.
- Be sure to install a ground fault circuit interrupter. Failure to install a ground fault circuit interrupter may result in electric shocks or fire.
- Carry out the specified installation work after taking into account strong winds, typhoons, or earthquakes.
- Improper installation work may result in the equipment falling and causing accidents.
- Check the unit stand for damage on a continual basis, especially if it has been used for a long time. If left in a damaged condition the unit may fall and cause injury.
- Do not allow children to play on or around the unit as they can be injured.

— **NOTE** —

- While following the instructions in this installation manual, insulate piping in order to prevent condensation. Improper piping insulation may result in water leakage and property damage.
- Do not turn off the power immediately after stopping operation. Always wait at least five minutes before turning off the power or water leakage and other problems can occur.
- Install the indoor and outdoor units, power supply wiring and connecting wires at least 3-1/2 feet away from televisions or radios in order to prevent image interference or noise. Depending on the radio waves a distance of 3-1/2 feet may not be enough to eliminate the noise.
- Remote controller (wireless kit) transmitting distance can be shorter than expected in rooms with electronic fluorescent lamps. Install the indoor unit as far away from fluorescent lamps as possible.

10.2 Installation of FXOQ__MVJU

Check the unit rating plate for unit size, electric heat, coil, voltage, phase etc. to be sure unit matches requirements.

WARNING!

Product contains fiberglass wool.

Disturbing the insulation in this product during installation, maintenance or repair will expose you to fiberglass wool. This material may cause respiratory, skin, and eye irritant. Breathing this may cause lung cancer. (Fiberglass wool is known to the State of California to cause cancer.)

Requirements

Installation of air handler units with or without optional heat must conform with standards in the National Fire Protection Association (NFPA) "Standard for installation of Air Conditioning and Ventilation Systems NFPA No. 90A," and Standard for Installation of Residence Type warm Air Heating and Air Conditioning Systems NFPA No. 90B, manufacturer's installation instructions and local municipal building codes. This unit is certified for installation clearances to combustible material as listed on the unit rating plate. Accessibility and service clearances must take precedence over combustible material clearances.

Configuration

For ease in installation, it is best to make any necessary coil configuration changes before setting unit in place. For best efficiency and airflow, the horizontal pan (if installed) should be removed from units in upflow configurations.

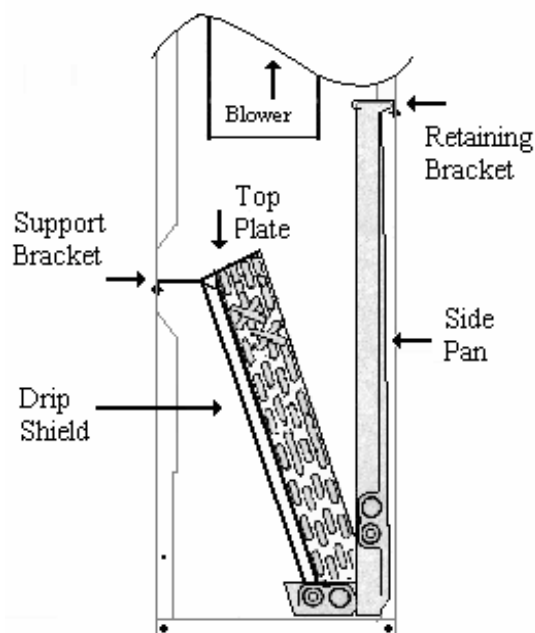
Sizes 12 through 30 are shipped from the factory with right hand refrigerant and drain connections in the vertical position.

Sizes 36 through 48 are shipped with center refrigerant, and left or right drain connections in the vertical position.

Installation

Air handler units come from the factory for upflow. Select a location with adequate structural support, space for service access, clearance for air return and supply duct connections. Place unit in desired location. Set unit so that it is level.

IMPORTANT: INSTALLATION CLEARANCE SHALL SATISFY STATE AND LOCAL CODES.



Ductwork

Ductwork should be fabricated and installed in accordance with local and/or national codes. This includes the standards of the National Fire Protection Association for installation of Air-Conditioning and Ventilating Systems, NFPA No. 90B.

The vast majority of problems encountered with combination heating and cooling systems can be linked to improperly designed or installed duct systems. It is therefore highly important to the success of an installation that the duct system be properly designed and installed.

All ducts should be suspended using flexible hangers and never fastened directly to the structure. Use flexible duct collars to minimize the transmission of vibration/noise into the conditioned space. If electric heat is used a non-flammable material is to be used

Refrigerant Piping

Refrigerant connections are 3/8" ODF Liquid and 3/4" ODF (12-30) or 7/8" ODF (36-48). **Refer to outdoor unit manufacturers recommendation on line sizing.**

Condensate Drain

Determine the drain connections to be used and note the difference between the primary and secondary openings.

Use screwdriver to remove webbing from selected openings.

It is recommended that 3/4" male pipe thread PVC fittings be used at the condensate pan. **Do not over-tighten.**

Tubing for all condensate drains should be a minimum of 7/8" OD.

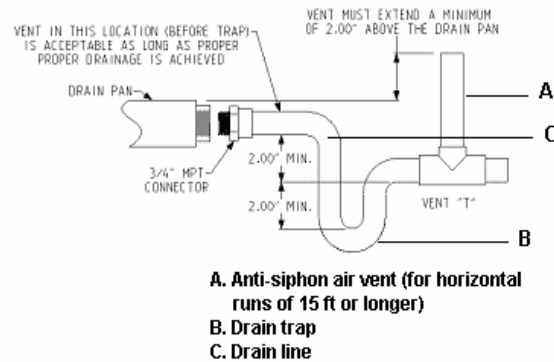
The drain should be pitched downward 1" per 10'. Install a 3" trap as close to the coil as possible.

Route drain line so that it does not interfere with accessibility to the coil, air-handling system or filter and will not be exposed to freezing temperatures.

If line makes a second trap, or has an extended run before termination, a vent tee should be installed after the trap closest to the pan.

Connect the primary drain and route toward an open drain or sump.

If the coil is located in a living space where damage may result from condensate overflow, a separate 3/4" drain must be provided from the secondary drain connection. Run this drain to a place in compliance with local installation codes where it will be noticed when unit is operational. Condensate flowing from the secondary drain indicates a plugged primary drain.

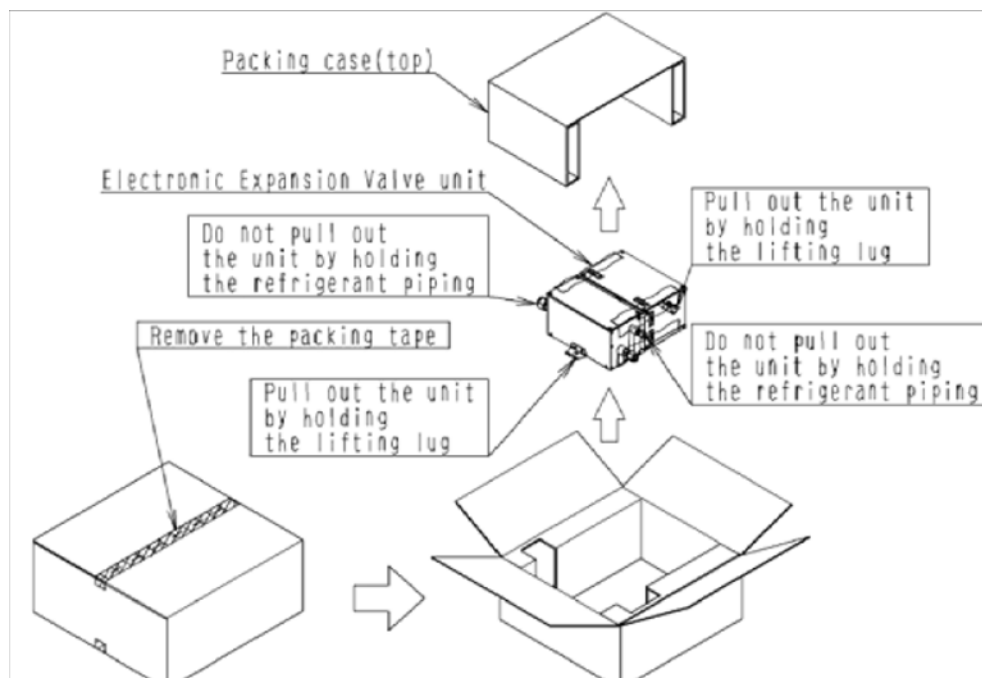


Be sure to prime the trap with water and test the line for leaks. Test water flow also with unit in operation.

10.3 Installation Steps for BEQ__MVJLR1

Step 1: BEFORE INSTALLATION

Take the Electronic Expansion Valve unit in its packing case to the installation space. Do not remove the packing case before installation. Remove the packing tape, open the packing case top, and pull out the unit using lifting lugs. Before installing, set the thermistor (8) on the auxiliary pipe of the Vertical Air Handling.



Step 2: SELECTING THE INSTALLATION SITE

— ⚠ — CAUTION —

- When moving the unit while removing it from the packing case, be sure to lift it by the four hanger brackets. Avoid putting any pressure on other parts, especially the refrigerant piping.
- If you think the humidity inside the ceiling might exceed 86°F and RH80%, reinforce the insulation on the unit body. Use glass wool or polyethylene foam as insulation so that the thickness is more than 1/2 in. and fits inside the ceiling opening.

Select an installation site where the following conditions are fulfilled and that meets with your customer's approval:

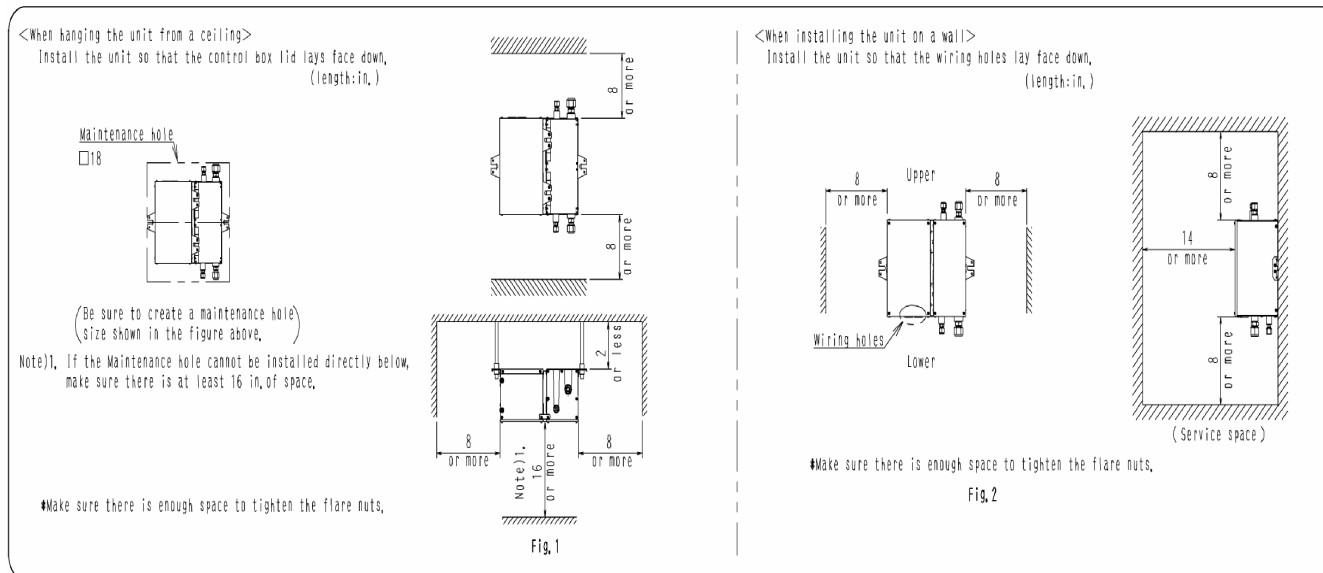
- Where optimum air distribution can be ensured.
- Where nothing blocks air passage.
- Where condensate can be properly drained.
- Where the ceiling is strong enough to bear the indoor unit weight.
- Where the false ceiling is not noticeably on an incline.
- Where sufficient clearance for maintenance and service can be ensured.
- Where piping between indoor and outdoor units is possible within the allowable limit. Refer to the installation manual for the outdoor unit.

— ⚠ — WARNING —

- If the supporting structural members are not strong enough to take the unit's weight, the unit could fall out of place and cause serious injury. Do not install unit in an area where flammable materials are present due to the risk explosion resulting in serious injury or death.

— ⚠ — NOTE —

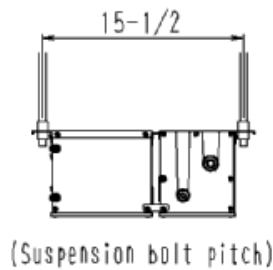
Install the indoor and outdoor units, power supply wiring and connecting wires at least 3.5 ft. away from televisions or radios. In order to prevent image interference or noise. Depending on the radio waves, a distance of 3.5 ft. may not be enough to eliminate the noise.



Step 3: PREPARATIONS BEFORE INSTALLATION

<When hanging the unit from a ceiling>

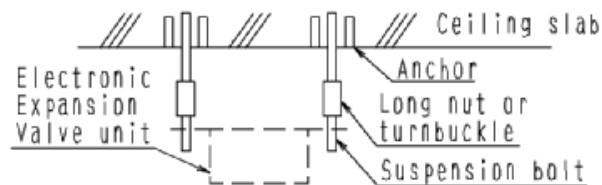
- (1) Check the relative locations of ceiling hole, unit, and suspension bolts.
(length:in.)



(Suspension bolt pitch)

Fig. 3

<Example of installation>



Note: All the above parts are field supplied.

Fig. 4

- (2) Open the holes of anchor or the holes for passing the piping and wiring out of the unit.

- Set the locations for the above holes, open them up and then lay the piping (refrigerant) and wiring (including both power supply and transmission wiring) up to the piping and wiring connections in the unit. (See "5 REFRIGERANT PIPING WORK" and "6 ELECTRIC WIRING WORK" for details.)

- It might be necessary to reinforce the ceiling frame to maintain the levelness and to prevent vibration. Consult an architect or carpenter for details.

- (3) Install the suspension bolts (M10-type or equivalent suspension bolts).

- When holes are to be made anew, use inserts or anchor bolts. When holes are already provided, use hole-in anchors or like. If use them, make sure that the weight of the unit can be supported.

- (4) When installing the Electric Components Box and the Piping Box separately, please keep the following dimension between the boxes.
(length:in.)

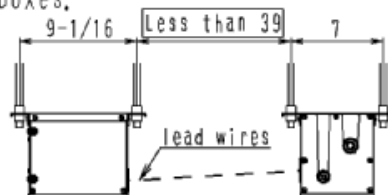


Fig. 5

<When installing the unit on a wall>

- (1) Check the relative locations of ceiling hole, unit, and suspension bolts.
(length:in.)

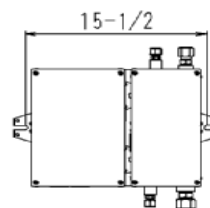


Fig. 6

- (2) When installing the Electric Components Box and the Piping Box separately, please keep the following dimension between the boxes.
(length:in.)

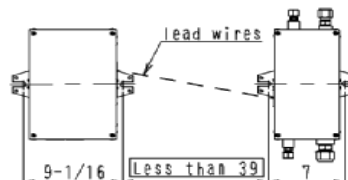


Fig. 7

Step 4: ELECTRONIC EXPANSION VALVE UNIT INSTALLATION

- Use only accessories and parts which are of the designated specification when installing.

<When hanging the unit from a ceiling>

- (1) Temporarily install the Electronic Expansion Valve unit.
 - Mount the lifting lugs to suspension bolts with two nuts and two washers.
- (2) Adjust the height of the main unit with the nuts.
- (3) Check that the main unit is on the right level.
- (4) Tighten the nuts securely.

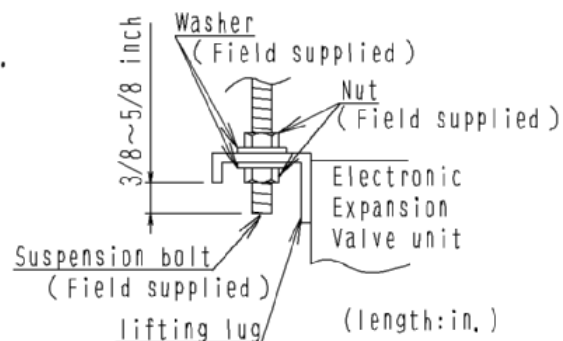


Fig. 8

<When installing the unit on a wall>

- (1) Fix the lifting lugs to the mounting bolts with nuts, washers and spring washers. (M10-type or equivalent mounting bolts, nuts, washers and spring washers)
- (2) Check the nuts are firmly tightened.

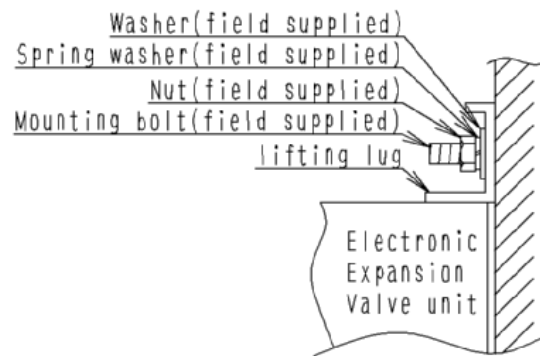


Fig. 9

Step 5: REFRIGERANT PIPING WORK

1. This section shows the piping method between the outdoor unit, the Electronic Expansion Valve unit, and the Vertical Air Handling unit. Select the pipe size and refrigerant branch kit depending on how the piping will be laid.
2. For refrigerant piping of outdoor units, see the installation manual attached to the outdoor unit.
3. Execute heat insulation work completely on both sides of the gas piping and the liquid piping. Otherwise a water leakage can result.
4. Before refrigerant piping work, check if the type of refrigerant is R410A. If not, proper operation is not possible.
5. Improve the insulation on the refrigerant piping depending on the installation environment. If the insulation is not sufficient, condensate may form on the surface of the insulation.
6. The temperature of the gas piping can reach up to approximately 220°F so use insulation that is sufficiently resistant.

NOTE

- Use a pipe cutter and flare substitute for the type for the type of R-410A.
- Apply ester oil or ether around the flare section before connecting.
- To prevent dust, moisture, or other foreign matter from infiltrating the tube, either pinch the end or cover it with tape.
- Do not allow anything other than the designated refrigerant to get mixed into the refrigerant circuit, such as air. If any refrigerant gas leaks while working on the unit, immediately ventilate the room thoroughly.
- Use the flare nuts attached to the main body.
- Ensure the outdoor unit is charged with refrigerant.
- For the refrigerant piping and branching, follow the Pipe Connection Procedure.
- Be sure to use both a spanner and torque wrench, as shown in Figure 10, when connection or disconnecting piping to/from unit.
- Refer to Table 1 for the dimensions of flare nut spaces.
- When connecting the flare nut, coat the flare both inside and outside with ester or ether oil and initially tighten 3 or 4 turns by hand before tightening firmly. See Figure 11.
- Refer to Table 1 to determine the proper tightening torque.
- Over-tightening may damage the flare and cause a refrigerant leakage.
- You must use a torque wrench but if one is not available, you may follow the instructions in Table 2.
- When you continue tightening the flare nut with a spanner, there is a point where the tightening torque suddenly increases. From that position, further tighten the flare nut to the angle shown in Table 2.

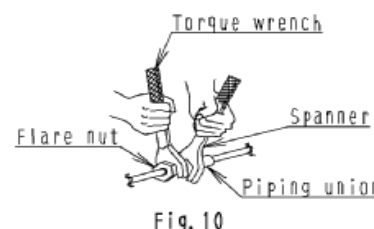


Fig. 10

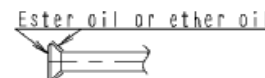


Fig. 11

CAUTION

After piping work is completed, make sure that there is no gas leak.

- Do not use anti-oxidants when brazing the piping joints as residue can clog piping and break equipment.
- Do not use flux when brazing refrigerant piping. Use the phosphor copper brazing filler metal (BCuP-2: JISz3264/B-Cu93P-710/795: ISO 3677) which does not require flux. Flux has an extremely negative effect on refrigerant piping systems and if chlorine-based flux is used, it causes pipe corrosion. Flux containing fluorine damages refrigerant oil.
- Do not use anti-oxidants when brazing the piping joints as residue can clog piping and break equipment.
- Piping is very hot after brazing so use caution to avoid burns.
- Before brazing local refrigerant piping, nitrogen gas must be blown through the piping to expel air from pipes.
- If your brazing is done without nitrogen gas blowing, a large amount of oxide film develops inside the piping and could cause system malfunction. Once this is done, connect the indoor unit with a flared connection.
- Nitrogen should be set to 2.90 PSI with a pressure-reducing valve if brazing while inserting nitrogen into the piping.
- Do not use anti-oxidants when brazing the piping joints. Residue can clog piping and break equipment.

<Table 1>

Pipe size	Tightening torque (ft-lbf)	Flare dimensions A (in.)	Flare shape(in.)
φ 1/4	10.5~12.7	0.343~0.358	
φ 3/8	24.1~29.4	0.504~0.520	
φ 5/8	45.6~55.6	0.760~0.776	
φ 3/4	71.7~87.6	0.924~0.945	

<Table 2>

Pipe size	Further tightening angle	Recommended arm length of tool (in.)
φ 1/4	60 to 90 degrees	Approx. 5-7/8
φ 3/8	60 to 90 degrees	Approx. 7-7/8
φ 5/8	30 to 60 degrees	Approx. 11-13/16
φ 3/4	20 to 35 degrees	Approx. 17-11/16

NOTE

- Make absolutely sure to execute heat insulation works on the pipe-connecting section after checking gas leakage by thoroughly studying the following Figures 12 and 13.
- Wrap the insulation for fitting (3)(4) around the insulation for the joints on the liquid piping side and the gas piping side. Refer to Figures 12 and 13.
- When installing the unit on the ceiling, make sure that the seam between the insulation for fitting (3)(4) faces up. Fasten both ends with the clamps (2). Figures 12 and 13 show how to install on the wall.
- Wrap the included sealing pad (5) around the insulation for fitting (3) and (4) referring to Figure 14.

CAUTION

- Be sure to insulate any field piping all the way to the piping connection inside the unit. Any exposed piping may cause condensation or burns if touched.
- Do not use flue when brazing refrigerant piping. Use the phosphor copper brazing filler metal (BCUP-2:JIS 3264/B-Cu93P-710/795:ISO 3677) which does not require flux. Flux has an extremely negative effect on refrigerant piping systems. For example, if chlorine based flux is used, it will cause pipe corrosion. Flux containing fluorine damages refrigerant oil.

NOTE

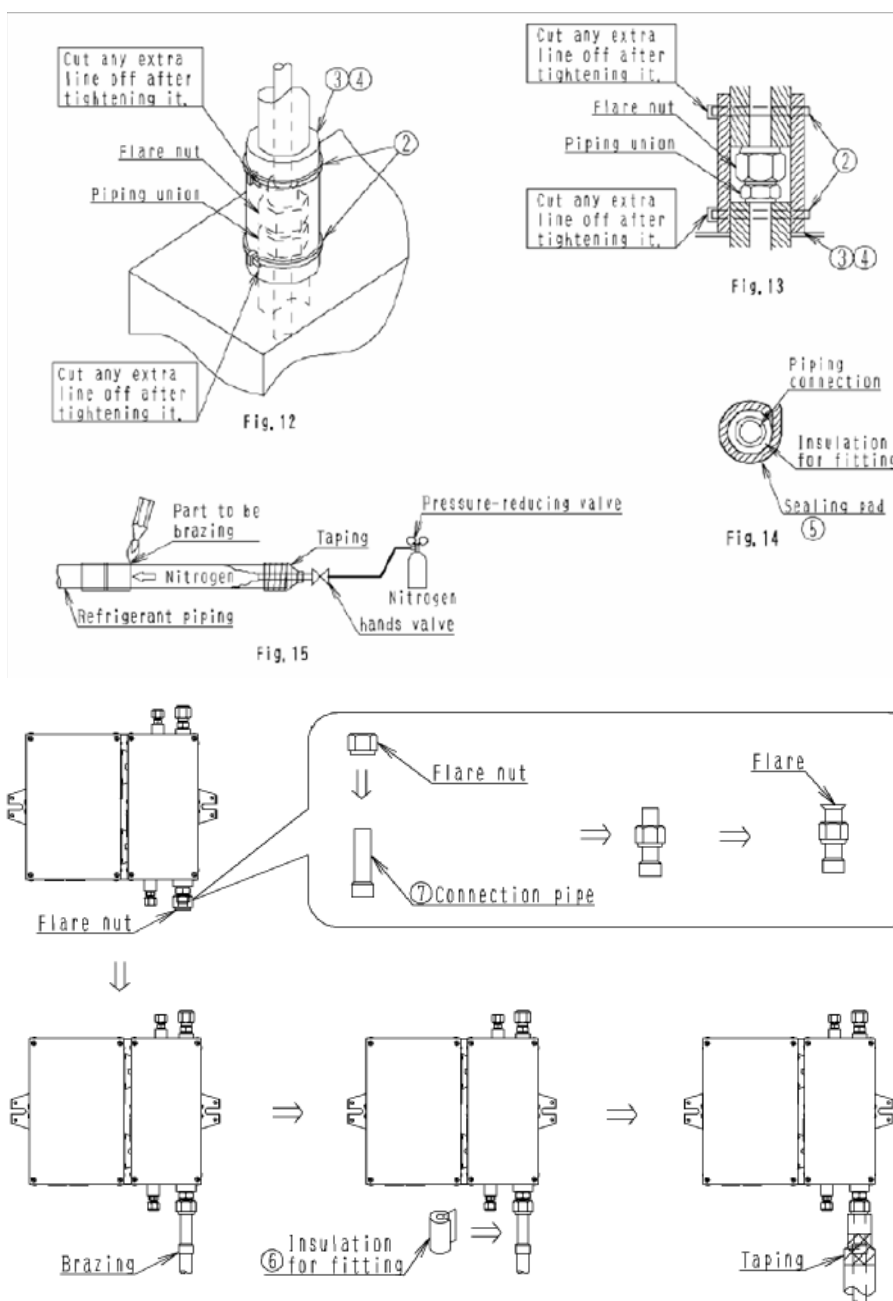
- Before brazing local refrigerant piping, nitrogen gas shall be blown through the piping to expel air from piping. If your brazing is conducted without nitrogen gas-blowing, a large amount of oxide film develops inside the piping, and could cause system malfunction.
- When brazing the refrigerant piping, only begin brazing after having carried out nitrogen substitution or while inserting nitrogen into the refrigerant piping. Once this is done, connect the indoor unit with a flared connection.
- Nitrogen should be set to 2.90 PSI with a pressure-reducing valve if brazing while inserting nitrogen into the piping.

Piping Connections (gas side) between BEQ36-48 type and the Vertical Handling Unit:

1. Remove the flare nut (gas side 34") after setting the Electronic Expansion Valve unit.
2. Put the flare nut through the Connection Pipe (7) and process flare.
3. Braze the connection pipe as shown in diagram, and connect BEQ36-48 type and the Vertical Handling unit.
4. Set the insulation for fitting (6) attached on the Connection Pipe (7). Close the gap between the pipe insulations by taping tightly after setting.

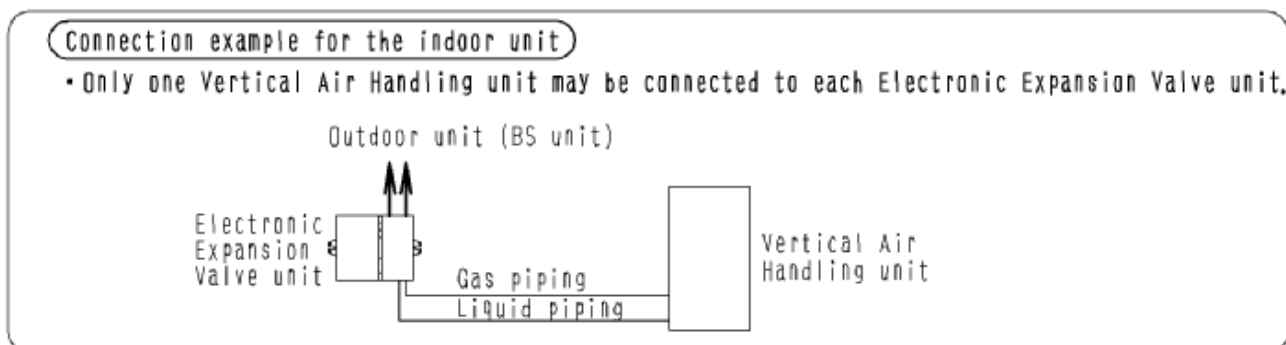
CAUTION

- Piping is very hot after brazing so use caution to avoid burns.
- Do not directly touch any refrigerant leakage from piping connections as it can cause frostbite.



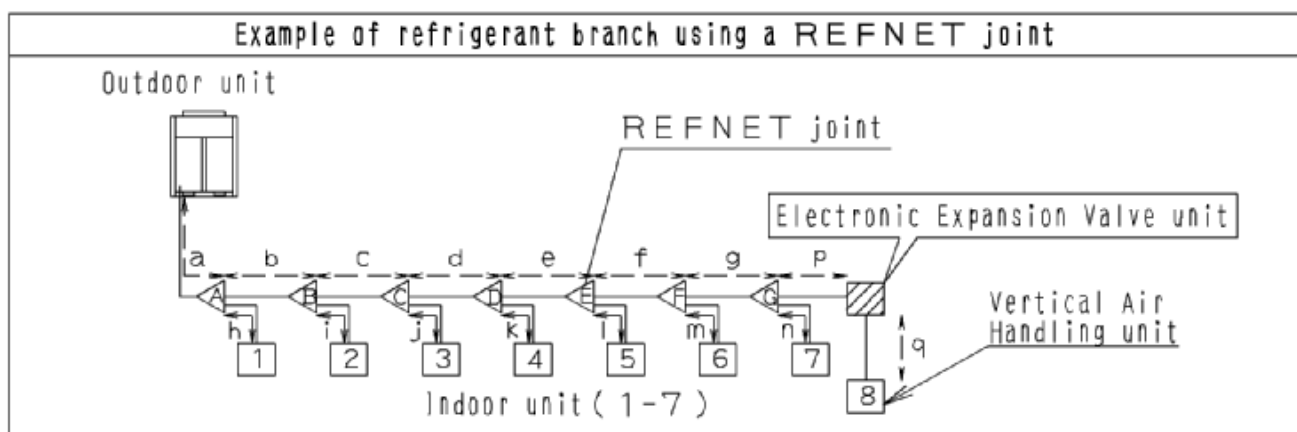
PIPING CONNECTION PROCEDURE:

- Make sure the length of the refrigerant piping between the Electronic Expansion Valve unit and the Vertical Air Handler unit is no more than 10 ft. and that the maximum difference in height is no more than 7 ft.
- When installing in the same outdoor unit, on the same floor, use the following diagram.

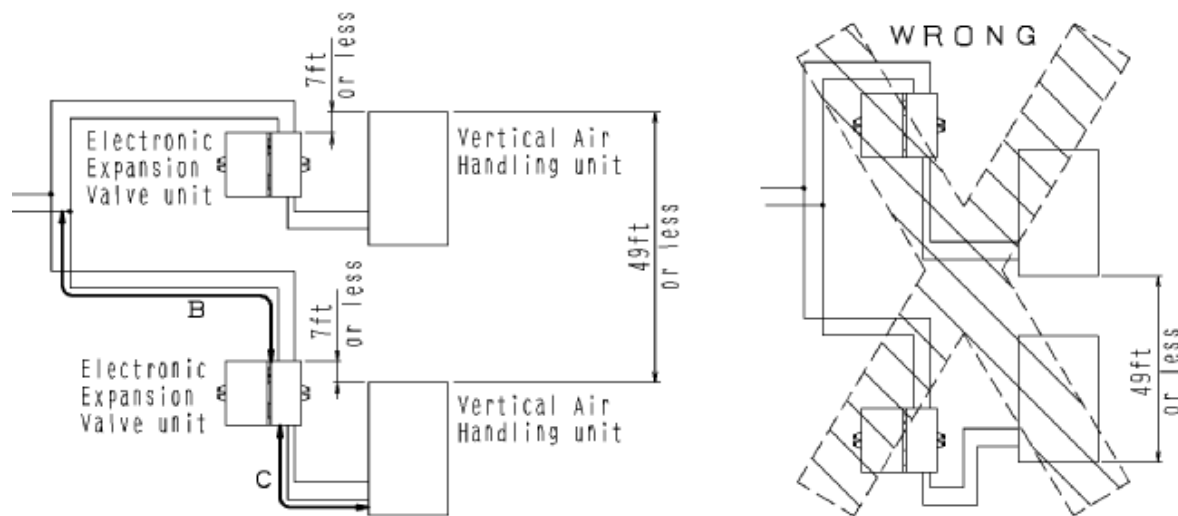


ADDITIONAL REFRIGERANT AMOUNT: When measuring the amount of additional refrigerant to fill, include the length of piping between the Electronic Expansion Valve unit and the Vertical Air Handling unit.

Additional filling amount: $a+b+c+d+e+f+g+h+i+j+k+l+m+n+p+q$



HEIGHT DIFFERENCE BETWEEN INDOOR UNITS: Install the Electronic Expansion Valve within a 49 ft. height difference between the Vertical Handling Units. Make sure that the difference in height between the Electronic Expansion Valve unit and the Vertical Handling unit is no more than 7 ft.

**Allowable length after split (actual piping length)**

$B+C \leq 115$ ft (length from the first branch piping to the indoor unit) $C \leq 10$ ft.

Step 6: ELECTRICAL WIRING WORK

General Information:

- All field supplied parts, materials, and electric works must conform to local codes.
- Use copper wire only.
- For electrical wiring work, refer to the WIRING DIAGRAM attached to the control box lid.
- For remote controller details, refer to the installation manual attached to the remote controller.
- All wiring must be performed by an authorized electrician.
- One Electronic Expansion valve unit is connected to one Vertical Air Handling unit. Mark each Electronic Expansion Valve unit A, and each Vertical Air Handling unit B. Be sure the terminal block wiring to the outdoor unit and the BS unit are properly matched. If wiring and piping between outdoor unit, Vertical Air Handling unit, and Electronic Expansion Valve units are mismatched, the system may cause a malfunction.
- A circuit breaker capable of shutting down power supply to the entire system must be installed.
- Refer to the installation manual attached to the outdoor unit for the size of power supply wiring connected to the outdoor unit, the capacity of the circuit breaker and switch, and wiring instructions.
- Be sure to ground the air conditioner.
- Do not connect the ground wire to gas and water pipes, lightning rods, or telephone ground wires.
- Gas pipes might cause explosions or fire if the gas leaks.
- Water pipes have no grounding effect if hard vinyl piping is used.
- Telephone ground wires or lightning rods might cause abnormally high electric potential in the ground during lightning storms.

Electrical characteristics

Model	Units			Power supply		Fan motor
	Hz	Volts	Voltage range	MCA	MFA	FLA
12Type+BEQ12MVJLR1	60	208	Max. 229 Min. 187	1.5	15	1.1
18Type+BEQ18MVJLR1				2.8		2.1
24Type+BEQ24MVJLR1				3.4		2.6
30Type+BEQ30MVJLR1				3.9		3.0
36Type+BEQ36MVJLR1				5.2		4.0
42Type+BEQ48MVJLR1						
48Type+BEQ48MVJLR1						

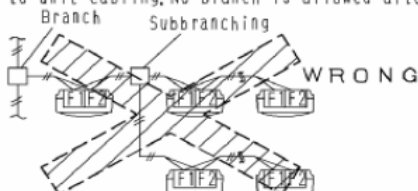
MCA:Min. Circuit Amps(A); MFA:Max. Fuse Amps(A); FLA:Full Load Amps(A)

- Note)1. The above Table of Electrical Characteristics refers to the Electronic Expansion Valve unit and the Vertical Air Handling unit.
 2. See the technical documents for other details.
 3. See the electric characteristics of the Vertical Air Handling unit installation manual. Especially for the models with the electric heater, take care the differences both MCA and MFA.

Specifications for field supplied fuses and wire

Model	Power supply wiring			Transmission wiring	
	Field fuse	Wire	Size	Wire	Size
Electronic Expansion Valve unit + Vertical Air Handling unit	15A	UL1015	Size must comply with local codes.	Vinyl cord with sheath or cable (2 wire)(Note2.)	AWG16-18

- Note)1. Select the particular size of electrical wire for power line in accordance with the standards of the given nation and region.
 2. Allowable length of the transmission wiring should be as follows.
 Between outdoor unit and Electronic Expansion Valve unit : Max. 3281ft (Total wiring length:6562ft)
 Between Electronic Expansion Valve unit and Vertical Air Handling unit :Max. 10ft
 Max. branches No. of branches : 16
 3. Insulated thickness : 1/16inch or more
 4. Up to 16 branches are possible for unit-to-unit cabling. No branch is allowed after first branch. (Refer to Fig.16)



How to Connect Wiring

- Connect the wiring only after finishing the refrigerant piping work.
- First make sure all power supply is isolated.
- As shown in Figure 17, loosen the 4 screws on the control box lid, remove it, and conduct wiring work.
- Once all wiring is completed, attach the control box lid and secure it with screws.
- Remote sensor lead wire:
 1. Connect to (X13A) on AIP. Connector Color: White, Size: Large.
 2. Bundle the remote sensor lead wire using the included clamp (1).
 3. Make sure no tension is present on the remote sensor lead wire coming out of the unit.
- Thermistor Lead Wire (8):
 1. Connect to (X21A) on AIP (Connector Color: White, Size: Small).
 2. Bundle the thermistor lead wire using the included clamp (1).
 3. Make sure no tension is present on the thermistor lead wire coming out of the unit.
- 4. **For fixing the Liquid Line Thermistor, refer to Step 7.**
- Power supply wiring and ground wire:
 1. Connect the wiring between the Electronic Expansion Valve unit and the Vertical Air Handling unit. The power source is supplied from the Vertical Air Handling unit.
 2. Connect the wiring to L1 and L2 on the power supply terminal block (X11M). Also connect the ground wire to the ground terminal. Take the wiring and the ground wire into the unit through the provided cabling hole and firmly secure them using the included clamp (1).
- Transmission wiring for Vertical Air Handling Unit:
 1. Connect the wiring between the Electronic Expansion Valve unit and the Vertical Air Handling unit
 2. Connect the wires to 1, 2, 3, and 4 on the operation terminal (X13M). Take the wires into the unit through the provided cabling hole and firmly secure them using the included clamp (1).
- Transmission wiring for remote control and outdoor unit:
 1. Connect the remote control wiring to P1 and P2 on the transmission terminal block (X12M)
 2. Connect the outdoor unit wiring to F1 and F2 on the transmission terminal block (X12M)

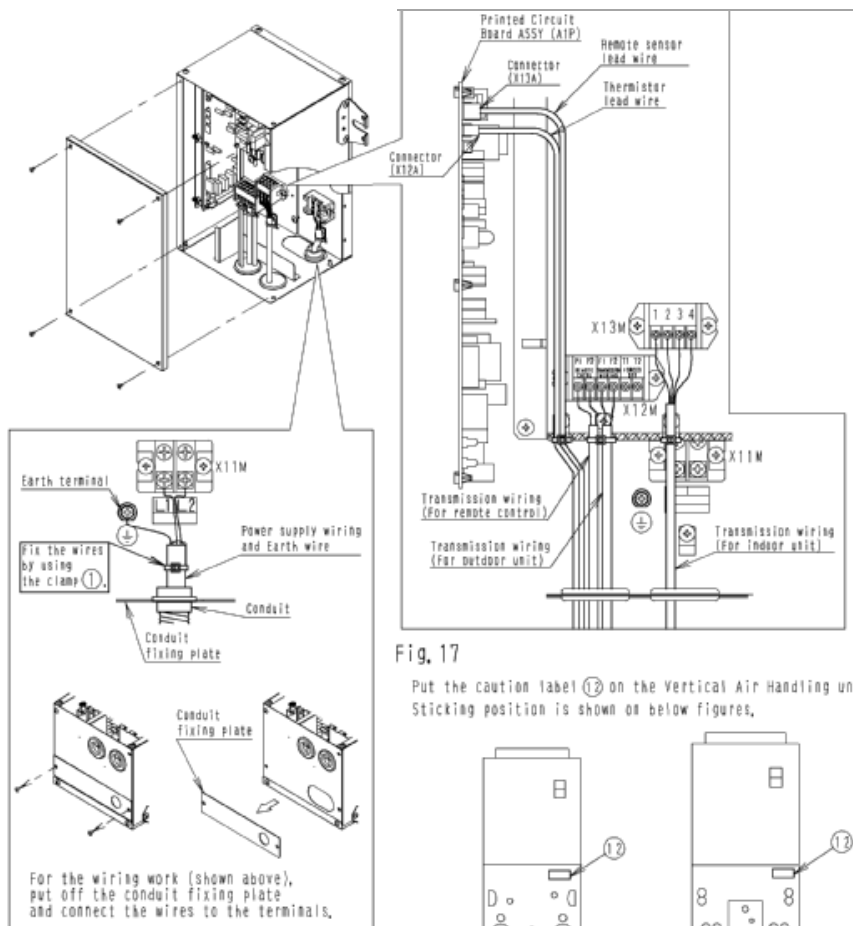


Fig. 17

Put the caution label ⑫ on the Vertical Air Handling unit. Sticking position is shown on below figures.

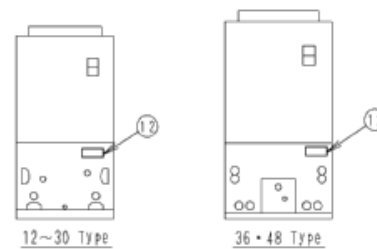


Fig. 18

3. Take the wiring through the provided cabling hole and secure the remote control wiring and outdoor unit wiring using the included clamp (1).

⚠ CAUTION

Do not, under any circumstances, connect the power supply wiring to the transmission block (F1, F2) as this may cause damage to the entire system.

⚠ CAUTION

- When clamping wiring, use the included clamping material to prevent outside pressure being exerted on the wiring connections and clamp firmly. Pass wiring through the wiring through holes to prevent damage to them.
- Make the lid on the electric parts box fits snugly by arranging the wires neatly and attaching the electric parts box lid firmly. When attaching the electric parts box lid, make sure no wires get caught in the edges.
- To avoid short circuits in the electric parts box, be sure to apply the sealing material or putty (not included) to the wiring hole to prevent the infiltration of water, insects or other small creatures.
- Outside the machine, separate the low voltage wiring (remote control wiring, outdoor unit wiring) and high voltage wiring (power supply wiring, inter-unit wiring, ground wire, and other power wiring) at least 2 inches so that they do not pass through the same place together. Proximity may cause electrical interference, malfunction, and breakage.

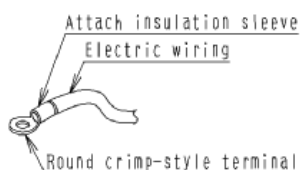
PRECAUTIONS:

Use round crimp-style terminals for connecting wires to the power supply terminal block. If unavailable, observe the following points when wiring. Do not connect wires of different gauges to the same power supply terminal. Looseness in the connection may cause overheating.

- Use the specified electric wire. Connect the wire securely to the terminal. Lock the wire down without applying excessive force to the terminal. (Tightening torque: 0.97ft.lbf $\pm$ 10%)

Tightening torque for the terminal screws.

- Use the correct screwdriver for tightening the terminal screws. If the blade of screwdriver is too small, the head of the screw might be damaged, and the screw will not be properly tightened.
- If the terminal screws are tightened too hard, screws might be damaged. Refer to the table below for the tightening torque of the terminal screws.
- Do not connect wires of different gauges to the same wiring terminal. Looseness in the connection can deteriorate protection.
- Outside of the unit, keep the low voltage wiring (transmission wiring) at least two inches away from the high voltage wiring (power supply wiring, inter-unit wiring, ground wire, and other power wiring). The equipment may malfunction if subjected to external electrical noise.



Terminal	Size	Tightening torque(ft · lbf)
Transmission terminal block	M3.5	0.58~0.72
Power supply	M4	0.87~1.06
Ground terminal	M4	1.06~1.43

For remote controller wiring, refer to the **INSTALLATION MANUAL OF REMOTE CONTROLLER** attached to the remote controller. Use only specified wire and connect wires to terminals tightly. Be careful wires do not place external stress on terminals. Keep wiring in neat order and so as not to obstruct other equipment. such as popping open the electric parts box lid. Make sure the lid closes tightly. Incomplete connections can result in overheating, and, in worse cases, electric shock or fire.

Wiring example

No. 1 System : When including BS unit.

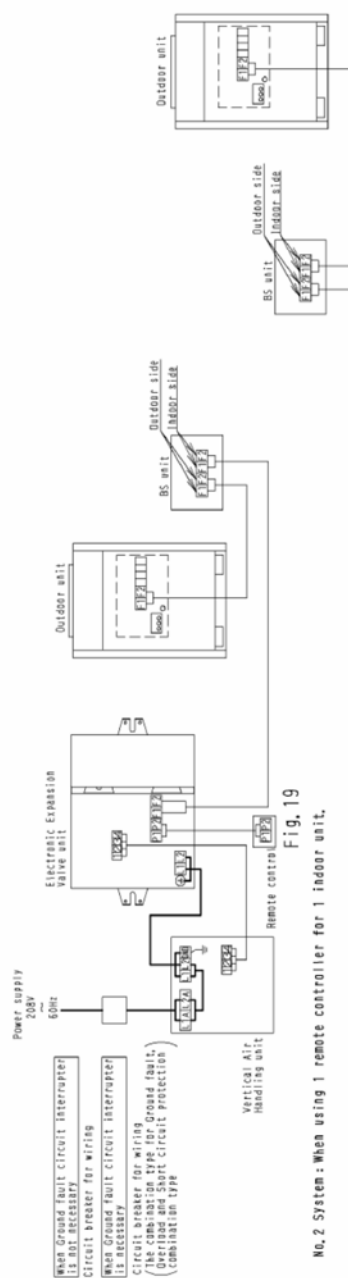


Fig. 19

No. 2 System: When using 1 remote controller for 1 indoor unit.

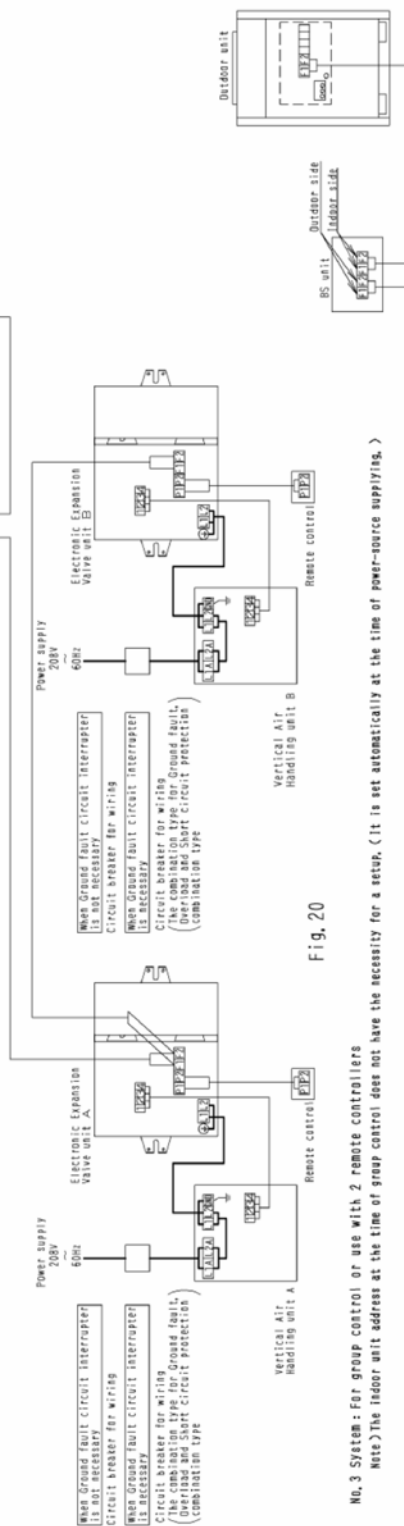


Fig. 20

No. 3 System: For group control or use with 2 remote controllers

(rate) The Iaddress unit address at the time of group control does not have the necessity for a setup. (It is set automatically at the time of power-source supplying.)

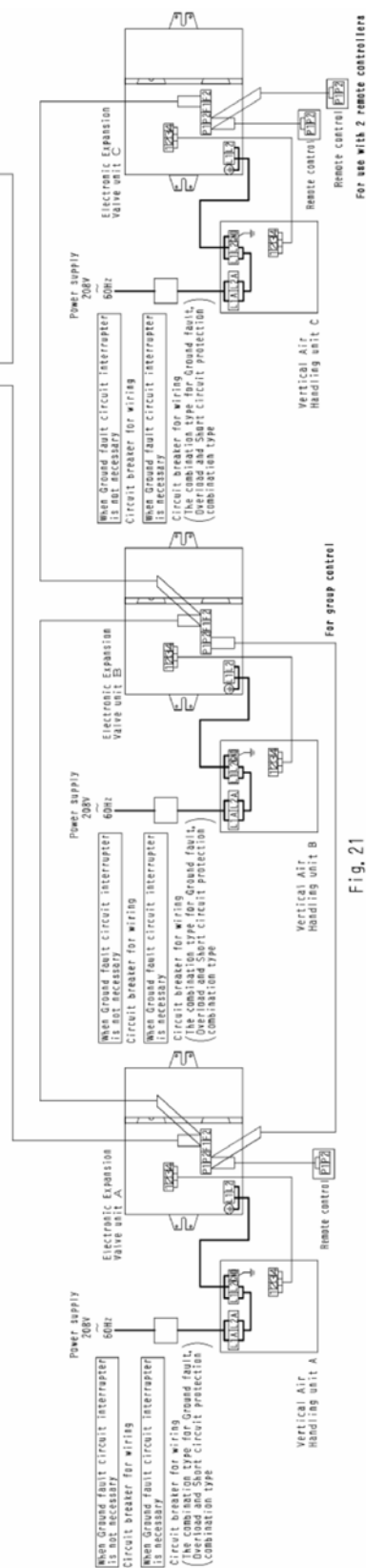
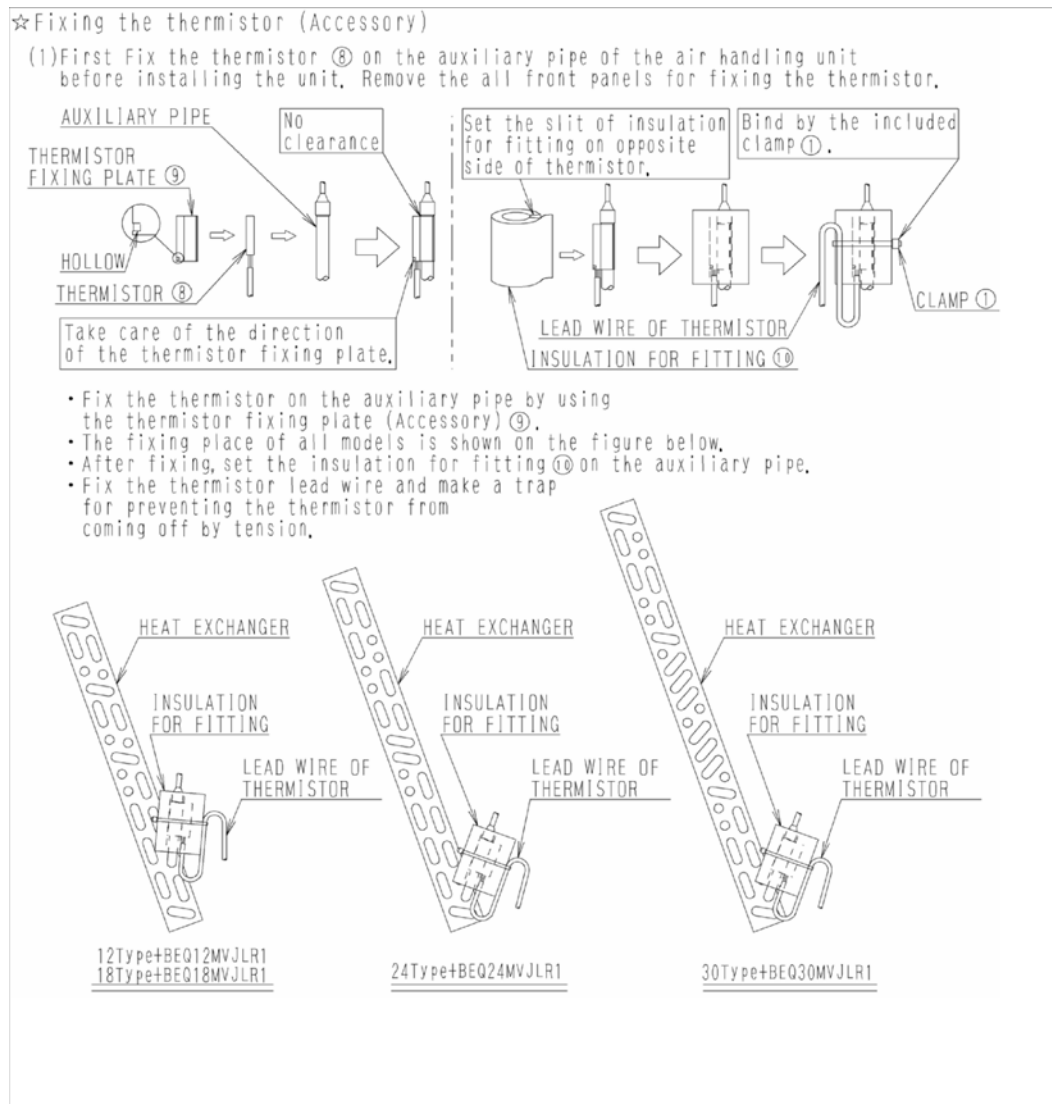


Fig. 21

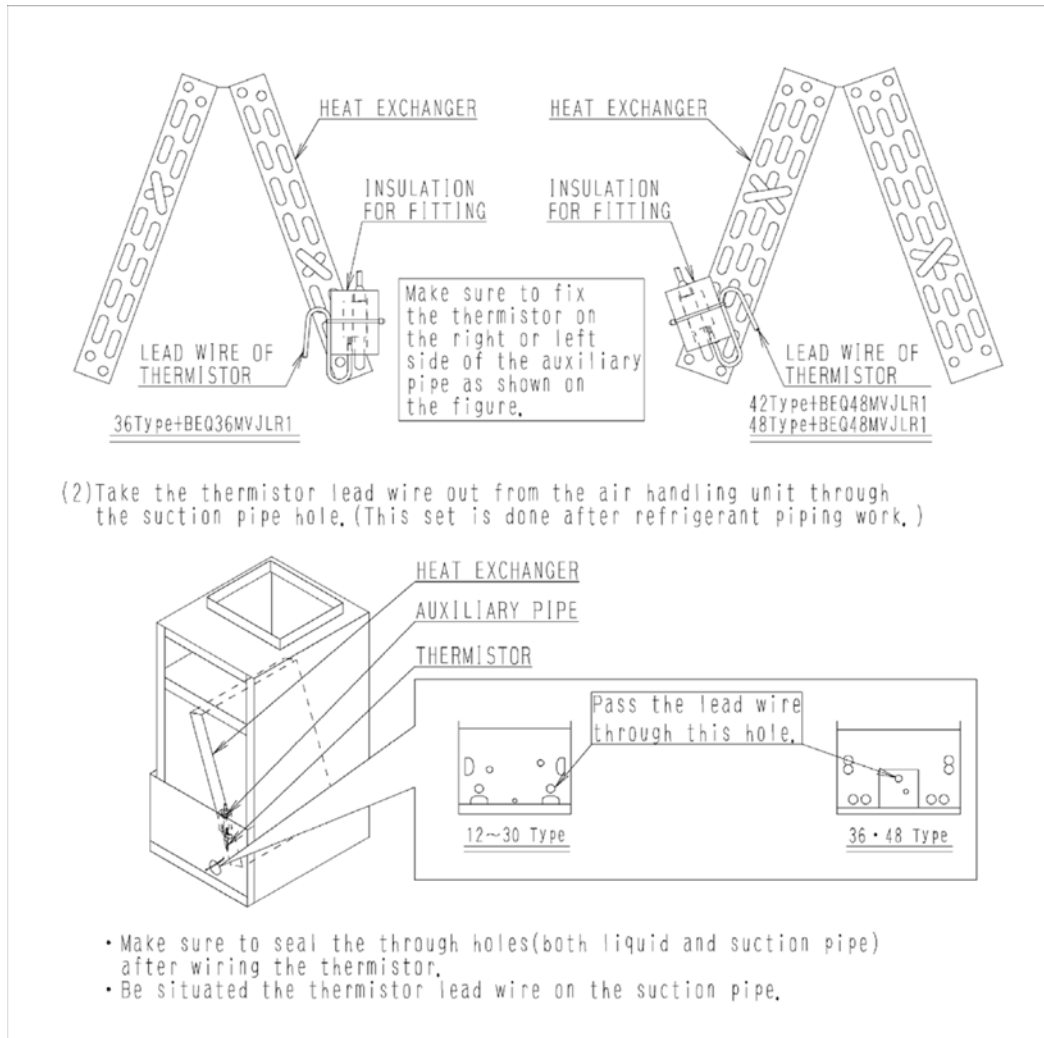
For use with 2 remote controllers

Step 7: FIXING THE LIQUID LINE THERMISTOR

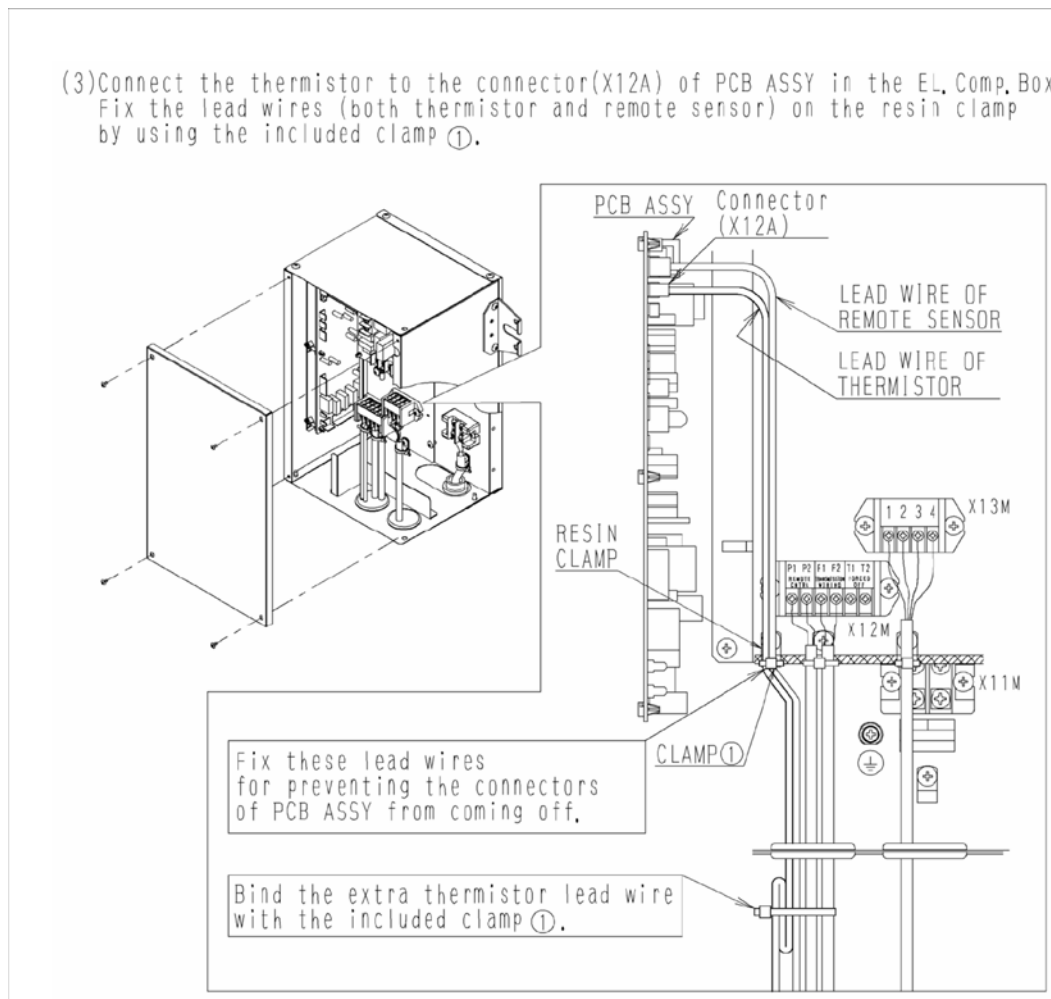
Step 1 of 3



Step 2 of 3



Step 3 of 3



Step 8: CAUTION LABEL

Attach CAUTION LABEL to the Air Handling Unit.

Step 9: TEST OPERATION

Make sure the control box lids are closed on the Vertical Air Handling unit, Electronic Expansion Valve unit, and outdoor units.

Refer to the **Installation Manual** of the outdoor unit.

The operation lamp of the remote controller flashes when a malfunction occurs. Check the malfunction and the corresponding trouble provided in **CAUTION FOR SERVICING THE OUTDOOR UNIT**.

Step 10: FINAL PRE-STARTUP CHECKS

USE SPECIAL CARE TO CHECK THE FOLLOWING ITEMS:

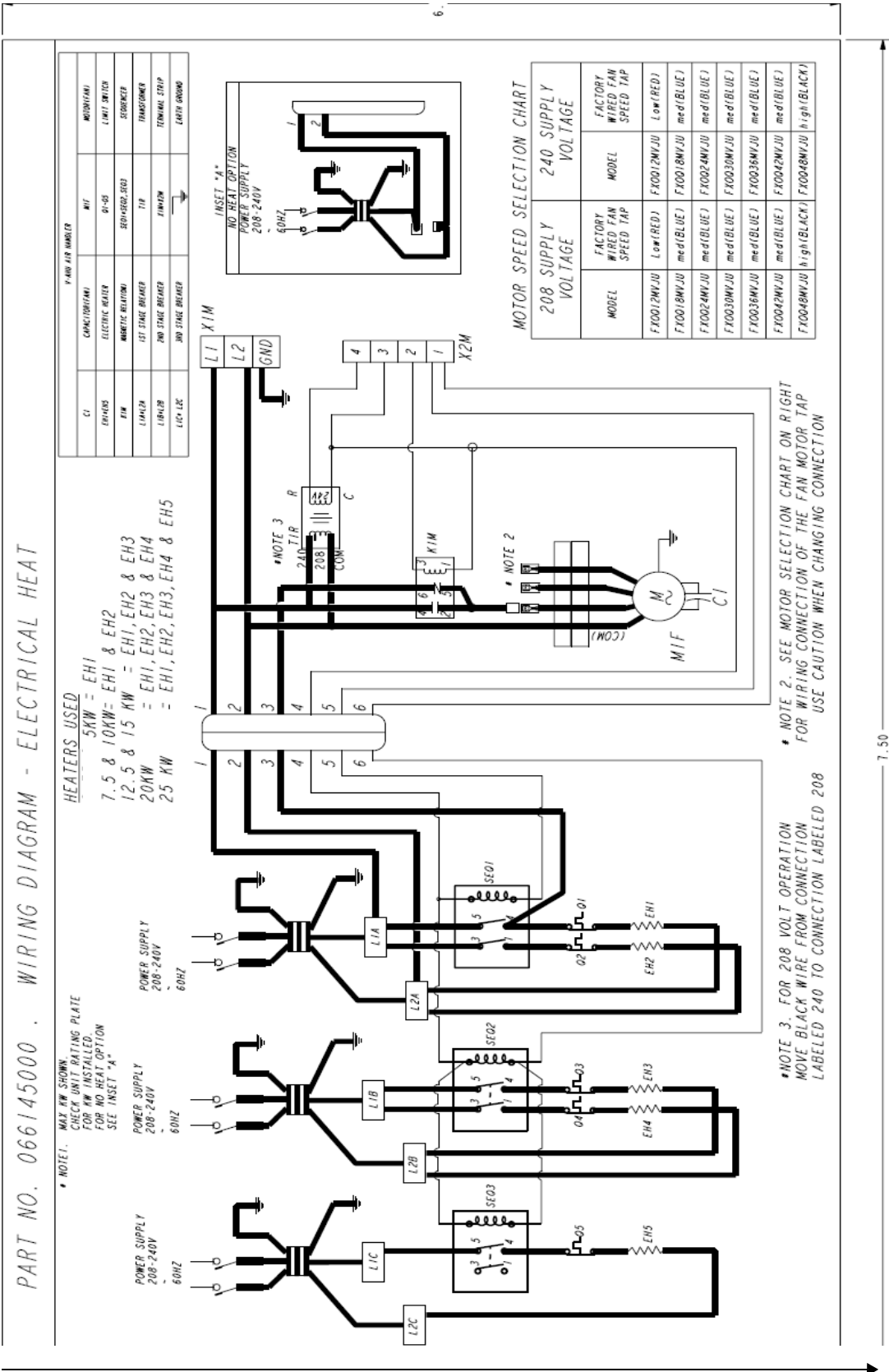
Items to be checked:	If not properly done what is likely to occur:	Check
Are the indoor and outdoor electronic expansion valves fixed firmly?	The units may drop, vibrate or make noise.	
Is the gas leak test finished?	Insufficient Cooling	
Is the unit fully insulated?	Condensate may drip	
Does the power supply voltage correspond to that shown on the name plate?	Unit may malfunction or the components may burn out.	
Are wiring & piping correct?	Unit may malfunction or components may burn out.	
Is the unit safely grounded?	Risk of electrical shock or leakage.	
Is wiring size according to specifications?	Unit may malfunction or the components may burn out.	
Are refrigerant piping length and additional refrigerant charge noted?	The refrigerant charge in the system is not clear.	

11. Electric Heater Options and Electrical Tables

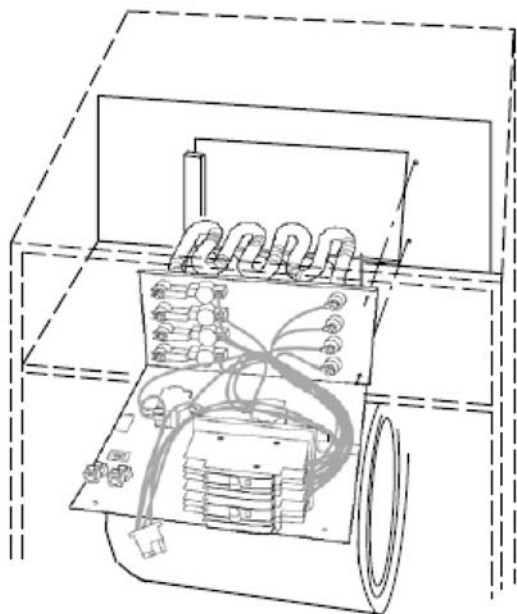
Electric Heaters for Models 12 -30 (1 - 2.5 ton)				
Description Heater Size rater at 240V	Field Installed Kit Part Number	kW @ 208V	kW @ 240V	Compatible Units MBTU/h
5 kW with Circuit Breaker	EHFXOQ__0502FK	3.76	5	12,18,24,30
7.5 kW with Circuit Breaker	EHFXOQ__0702FK	5.63	7.5	18,24,30
10 kW with Circuit Breaker	EHFXOQ__1002FK	7.51	10	18,24,30
12.5 kW with Circuit Breaker	EHFXOQ__1202FK	9.39	12.5	24,30
15 kW with Circuit Breaker	EHFXOQ__1502FK	11.27	15	30

Electric Heaters for Models 36 - 48 (3 - 4 ton)				
Description Heater Size rater at 240V	Field Installed Part Number	kW @ 208V	kW @ 240V	Compatible Units MBTU/h
12.5 kW with Circuit Breaker	EHFXOQ__1202FK	9.39	12.5	36,42,48
15 kW with Circuit Breaker	EHFXOQ__1502FK	11.27	15	36,42,48
20 kW with Circuit Breaker	EHFXOQ__2002FK	15	20	36,42,48
25 kW with Circuit Breaker	EHFXOQ__2502FK	18.8	25	48

TABLE 1																											
Electrical Data (208/240 Volts, 60 Hz, 1 phase)																											
Air Handler Size	Elec. Heating Cap.				Constant Speed Blower Amps				Total Amps Per Stage						Total Amps				Minimum Circuit Ampacity Per Stage				Circuit Breaker Size Per Stage (3)				
	Kw		BTUH		BTUH				208 V			240 V			208 v			240 v			208 V		240 V				
	208v (1)	240v	208v (1)	240v	208v	240v	1 (4)	2	3	1 (4)	2	3	1 (4)	2	3	1 (4)	2	3	1 (4)	2	3	1 (4)	2	3	1 (4)	2	3
12 No Heat	0	0	0	0	1.2	1.1	1.2			1.1					1.2	1.1											
12 Elec. Heat	3.76	5	12,812	17,065	1.2	1.1	19.3			21.9					19.3	21.9											
18 No Heat	0	0	0	0	1.2	1.1	1.2			1.1					1.2	1.1											
18 Elec. Heat	3.76	5	12,812	17,065	1.2	1.1	19.3			21.9					19.3	21.9											
18 Elec. Heat	5.63	7.5	19,218	25,598	1.2	1.1	28.3			32.4					28.3	32.4											
18 Elec. Heat	7.51	10	25,624	34,130	1.2	1.1	37.3			42.8					37.3	42.8											
24 No Heat	0	0	0	0	2.3	2.1	2.3			2.1					2.3	2.1											
24 Elec. Heat	3.76	5	12,812	17,065	2.3	2.1	20.5			23.0					20.5	23.0											
24 Elec. Heat	5.63	7.5	19,218	25,598	2.3	2.1	29.5			33.5					29.5	33.5											
24 Elec. Heat	7.51	10	25,624	34,130	2.3	2.1	38.5			43.9					38.5	43.9											
24 Elec. Heat	9.39 (2)	12.5 (2)	32,039	42,663	2.3	2.1	29.5	18.1		33.5					47.5	54.3											
30 No Heat	0	0	0	0	2.8	2.6	2.8			2.6					2.8	2.6											
30 Elec. Heat	3.76	5	12,812	17,065	2.8	2.6	20.9			23.4					20.9	23.4											
30 Elec. Heat	5.63	7.5	19,218	25,598	2.8	2.6	29.9			33.9					29.9	33.9											
30 Elec. Heat	7.51	10	25,624	34,130	2.8	2.6	38.9			44.3					38.9	44.3											
30 Elec. Heat	9.39 (2)	12.5 (2)	32,039	42,663	2.8	2.6	29.9	18.1		33.9					48.0	54.7											
30 Elec. Heat	11.27 (2)	15 (2)	38,453	51,195	2.8	2.6	38.9	18.1		44.3					57.0	65.1											
36 No Heat	0	0	0	0	3.2	3.0	3.2			3.0					3.2	3.0											
36 Elec. Heat	9.39 (2)	12.5 (2)	32,039	42,663	3.2	3.0	30.3	18.1		34.3					48.3	55.1											
36 Elec. Heat	11.27 (2)	15 (2)	38,453	51,195	3.2	3.0	39.3	18.1		44.7					57.4	65.5											
36 Elec. Heat	15.02 (2)	20 (2)	51,248	68,260	3.2	3.0	39.3	36.1		44.7					75.4	86.3											
42 No Heat																											
42 Elec. Heat	9.39 (2)	12.5 (2)	32,039	42,663	4.3	4.0	4.3			4.0					4.3	4.0											
42 Elec. Heat	11.27 (2)	15 (2)	38,453	51,195	4.3	4.0	40.4	18.1		45.7					58.5	66.5											
42 Elec. Heat	15.02 (2)	20 (2)	51,248	68,260	4.3	4.0	40.4	36.1		45.7					76.5	87.4											
48 No Heat																											
48 Elec. Heat	9.39 (2)	12.5 (2)	32,039	42,663	4.3	4.0	4.3			4.0					4.3	4.0											
48 Elec. Heat	11.27 (2)	15 (2)	38,453	51,195	4.3	4.0	40.4	18.1		45.7					58.5	66.5											
48 Elec. Heat	15.02 (2)	20 (2)	51,248	68,260	4.3	4.0	40.4	36.1		45.7					76.5	87.4											
48 Elec. Heat	18.78 (2)	25 (2)	64,077	85,325	4.3	4.0	40.4	36.1	18.1	45.7					94.6	108.2											
All electric heat models include circuit breakers. Models without electric heat have stripped wire line voltage connections.																											
(1) For 208 Volts a correction factor of 0.75 was used for Kw & BTUH.																											
(2) 12.5, 15, and 20 Kw (2 stage models) require 2 supply circuits. 25 Kw (3 stage model) requires 3 supply circuits.																											
(3) If the 3.75 KW heater is used in conjunction with a 208 V application, the circuit breaker must be rated at 20A.																											
(4) Circuit #1 includes blower motor amps.																											



12. Electric Heater Installation Instructions



General Information

These instructions are intended to be a general guide and do not supersede any local or national codes. Installation must conform with the local building codes and with the latest editions of the National Electric Code.

Read these instructions thoroughly before starting installation. Only qualified installers or technicians should install the electric heat section and all other equipment used in HVAC systems. You **must** follow federal, state, and local codes while you install this or any other HVAC equipment.

⚠ WARNING

If these instructions and/or codes are not followed or if the equipment is not properly installed, possible injury or death could occur during installation or operation.

Be sure to disconnect all power to the unit while you install and service this equipment. Use proper tools and protective equipment during installation and service.

Installation of Daikin blower sections with or without optional electric heat must conform with standards in the National Fire Protection Association (NFPA) "Standard for Installation of Air Conditioning and Ventilation Systems NFPA No. 90A," and "Standard for Installation of Resident Type Warm Air Heating and Air Conditioning System, No. 90B," the manufacturer's installation instructions, and local municipal building codes.

Electric Heat Sections

The electric heat sections provide field installed electric heat for **FXOQ** series air handler units.

Table 1 shows the available heat sections. Refer to the engineering handbook for specific heat section applications.

Table 1

Element Plate Kit	Heater Kw Rating	Stage	Termination Type
0655009-01	5	1	Pig Tail Connector
0655009-02	5	1	Terminal Block
0655009-03	5	1	Circuit Breaker
0655009-04	7.5	1	Circuit Breaker
0655009-05	7.5	1	Terminal Block
0655009-06	10	1	Terminal Block
0655009-07	10	1	Circuit Breaker
0655009-09	15	2	Circuit Breaker
0655009-11	20	2	Circuit Breaker

Shipping & Packing List

Package 1 of 1 contains

- 1 - Assembled electric heat section

Check equipment for shipping damage. If you find any damage, immediately contact the last carrier.

Heat Section Installation

Before installing the unit, check information on the unit rating plate to ensure that the unit meets the job specification, proper electrical power is available, and that proper duct clearances are maintained.

⚠ WARNING

Before installing or servicing unit, be sure ALL power to the unit is OFF. More than one disconnect switch may be present. Electrical shock can cause personal injury or death!

NOTE - If installing heat sections at the same time as the air handler unit, install the electric heat section in the air handler unit before setting the air handler unit and attaching the plenum.

1. Shut off all power to the air handler unit. More than one disconnect may be required.
2. Remove blower section access panel and keep the 6 screws to reattach access panel after installing heat elements.
3. Disconnect any existing field supply wires and pull them out of the air handler.
4. Remove the no-heat seal plate in the air handler frame. See figure 1.

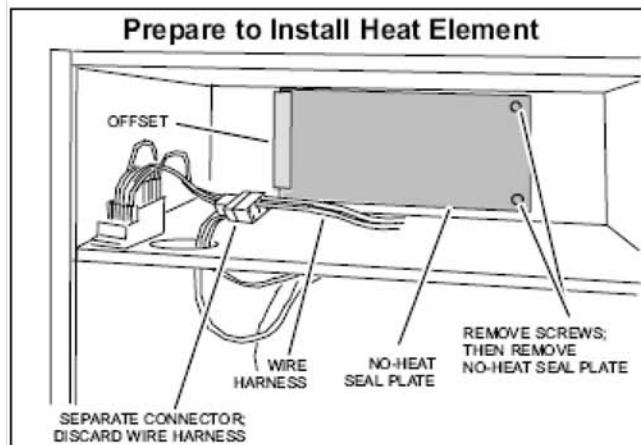


Figure 1

5. Slide the electric heat section into the blower section. Be careful that the heating elements do not rub against the sheet metal opening when they slide into the blower section. The side opposite the side with the mounting holes should slip behind the offset. The mounting holes should then line up with holes in the air handler control box.
6. Secure the electric heater assembly into place with the screws that were removed from the heat element panel. Install two field-provided #8 SDST screws in the front of the electric heater assembly (see figure 2).

Installing the Heat Element Assembly

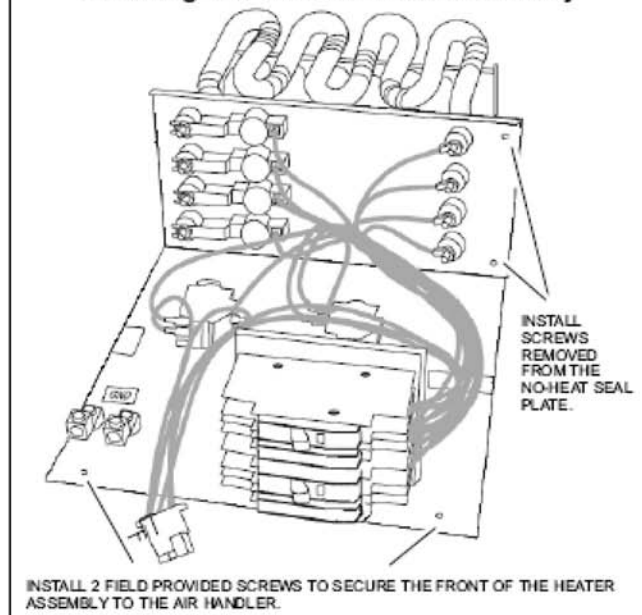


Figure 2

7. The air handler access panels have knockouts over the circuit breaker opening. Knock out both plates to accommodate the circuit breaker levers (see figure 3). If installing a heat element assembly with circuit breakers, remove the knockouts but do not install the access panel until all electrical connections have been completed.

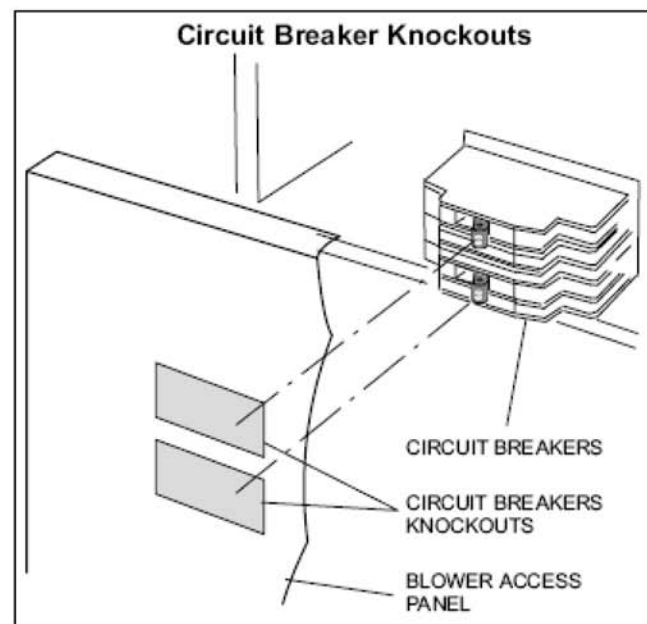


Figure 3

Electrical Connections

⚠ WARNING



Electric shock hazard. Be sure all power supplies have been disconnected before making electrical connections. Failure to do so can result in death or electrical shock.

⚠ WARNING

USE COPPER CONDUCTORS ONLY.

NOTE - Refer to the nameplate on the air handler unit for minimum circuit ampacity and maximum overcurrent protection size.

The air handler units are provided with openings to be used with 1-1/2 inch trade size (1-31/32 inch diameter) conduit.

If you want a single point power supply, refer to the nameplate on the single point power supply accessory for minimum circuit ampacity and maximum overcurrent protection size. Select the proper supply circuit conductors in accordance with tables 310-16 and 310-17 in the National Electric Code, ANSI/NFPA No. 70 or tables 1 through 4 in the Canadian Electric Code, Part I, CSA Standard C22.1.

Refer to figure 6 for typical low voltage field wiring for air handler/condensing unit and heat pump applications. Figure 7 is a diagram of the air handler connections and the heater elements high-voltage wiring.

1. Make wiring connections as follows -

Heaters equipped with circuit breakers—Connect field power supply wiring to circuit breaker(s). Figure 4 shows L1, L2 and ground (GND) connections for a 2-breaker configuration.

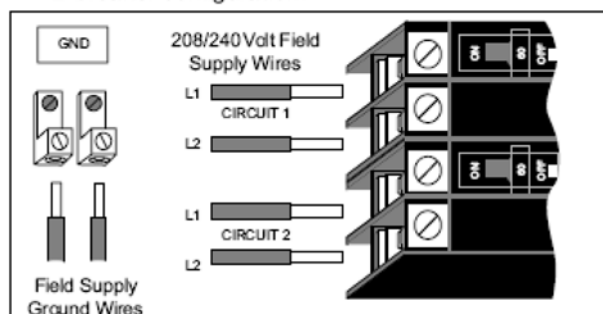


Figure 4

Heaters equipped with terminal blocks—Connect field power supply wiring to terminal block(s). Figure 5 shows L1, L2 and ground (GND) connection for a terminal block configuration.

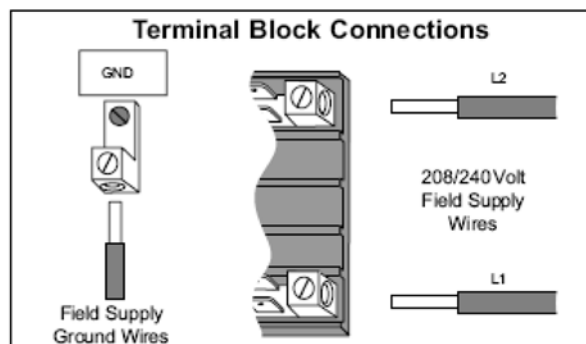


Figure 5

2. Remove the interface harness from the air handler unit and connect the 6-pin connector on the heater assembly to the mating connector on the air handler unit.

Unit Start-Up

1. After all electrical connections have been completed and jumpers configured (if required), replace the blower compartment access cover.
2. Restore power to the unit.
3. If using an electro-mechanical room thermostat, set the thermostat heat anticipator to 0.4 amps.
4. Set the thermostat above room temperature.
5. Check the heat pump and the heat section for normal operation.
6. Set the thermostat to desired setting.
7. Affix the wiring diagram sticker to blower scroll, aligned with CB unit wiring diagram sticker.

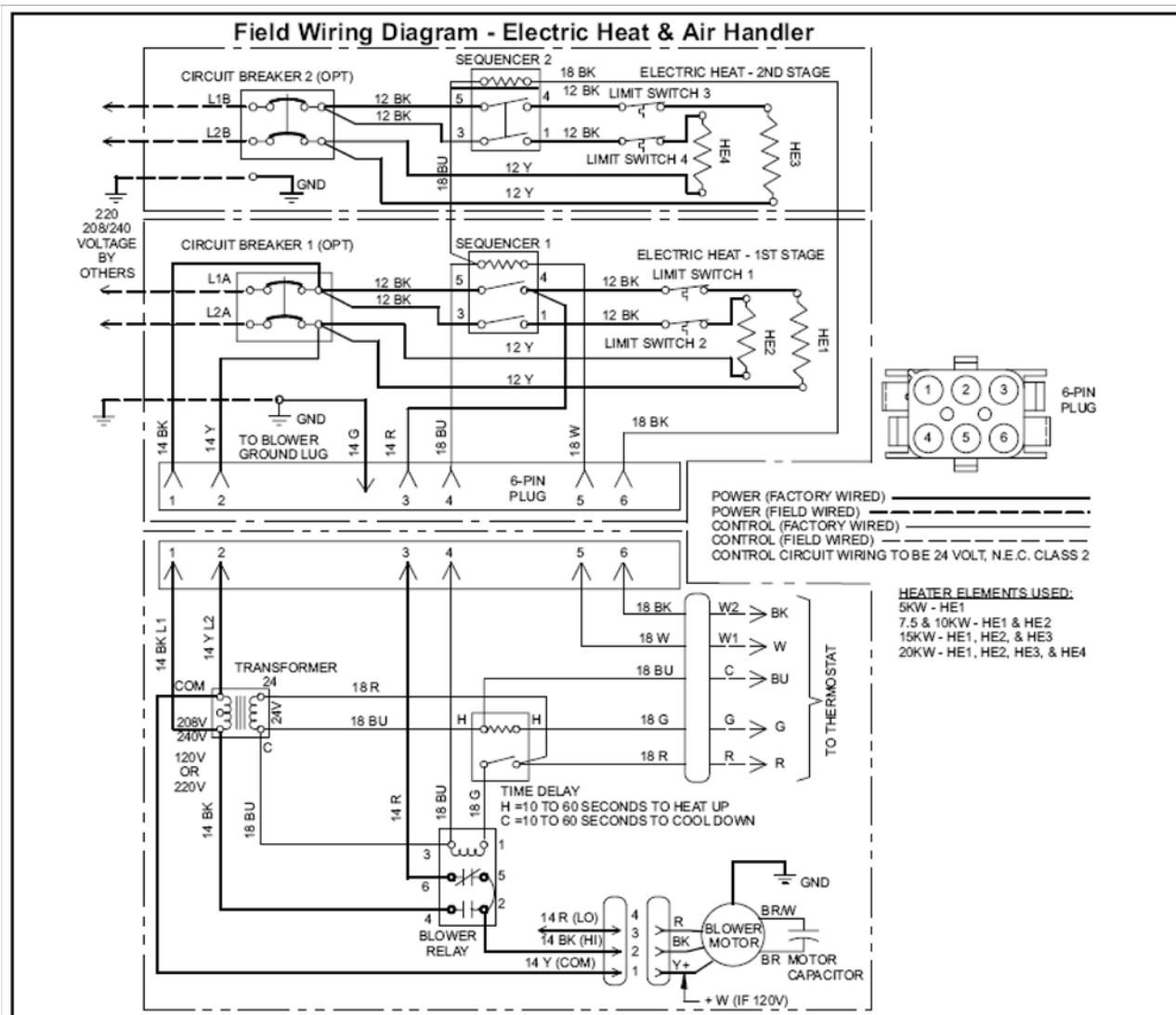


Figure 7

13. Accessories

Check if the following accessories are included in your unit.

Name	Clamp	Insulation for fitting	Sealing pad	Connection pipe	Thermistor	Thermistor fixing plate	Insulation for fitting	Installation manual	Caution label
Quantity	14 pcs,	4 pcs,	4 pcs,	each 1 pc,	1 pc,	1 pc,	1 pc,	2 pcs,	1 pc,
Shape	① 6 short pieces  ② 8 long pieces 	③ For liquid piping x 2  ④ For gas piping x 2 	⑤ 	⑥  ⑦  (Only BEQ36Type and BEQ48Type)	⑧ 	⑨ 	⑩ 	⑪  	⑫ 

OPTIONAL ACCESSORIES

Remote sensor	1 pc.
Remote controller	1 pc.

Warning

- Daikin Industries, Ltd.'s products are manufactured for export to numerous countries throughout the world. Daikin Industries, Ltd. does not have control over which products are exported to and used in a particular country. Prior to purchase, please therefore confirm with your local authorized importer, distributor and/or retailer whether this product conforms to the applicable standards, and is suitable for use, in the region where the product will be used. This statement does not purport to exclude, restrict or modify the application of any local legislation.
- Ask a qualified installer or contractor to install this product. Do not try to install the product yourself. Improper installation can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Use only those parts and accessories supplied or specified by Daikin. Ask a qualified installer or contractor to install those parts and accessories. Use of unauthorized parts and accessories or improper installation of parts and accessories can result in water or refrigerant leakage, electrical shock, fire or explosion.
- Read the User's Manual carefully before using this product. The User's Manual provides important safety instructions and warnings. Be sure to follow these instructions and warnings.

If you have any inquiries, please contact your local importer, distributor and/or retailer.



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JMI-0107



JQA-1452

About ISO9001

ISO 9001 is a plant certification system defined by the International Organization for Standardization (ISO) relating to quality assurance. ISO 9001 certification covers quality assurance aspects related to the "design, development, manufacture, installation, and supplementary service" of products manufactured at the plant.



EC99J2044



JQA-E-90108

About ISO 14001

ISO 14001 is the standard defined by the International Organization for Standardization (ISO) relating to environmental management systems. Our group has been acknowledged by an internationally accredited compliance organisation as having an appropriate programme of environmental protection procedures and activities to meet the requirements of ISO 14001.

Dealer

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